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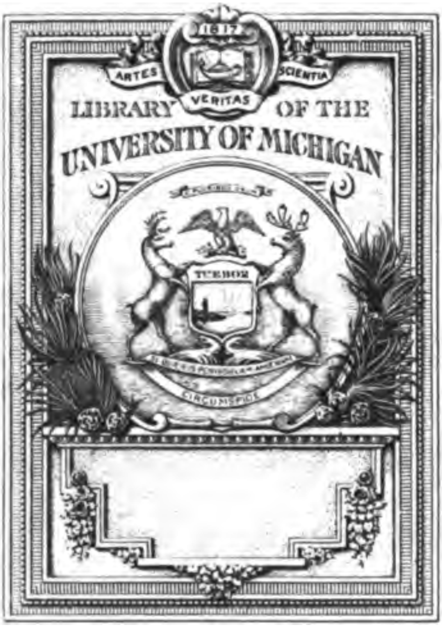
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FOURTH ANNUAL REPORT

OF THE

COMMISSIONER OF AGRICULTURE

OF

SOUTH CAROLINA,

FOR THE

FISCAL YEAR ENDING OCTOBER 31, 1883.

COLUMBIA, S. C.
CHARLES A. CALVO JR., STATE PRINTER.
1883.

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General

REPORT.

Office Commissioner of Agriculture,
Columbia, S. C., November 1, 1883.

To Governor Hugh S. Thompson, *Chairman Board of Agriculture.*

Sir: I have the honor to submit the Fourth Annual Report of the Commissioner of Agriculture; and also the reports of the subordinate officers of the Department of Agriculture.

Since the third Report was submitted, your Excellency has succeeded ex-Governor Hagood, as the Chief Executive of the State, and have become *ex officio* Chairman of the Board of Agriculture.

At a meeting of the Board, held April 11th, 1883, Mr. Philip E. Chazal, E. M., of Charleston, was elected State Chemist, in place of Prof. C. U. Shepard, Jr., who had previously executed all analyses desired by the Board. No other changes of officers have occurred in any branch of the Department, and in all other respects it remains as constituted at date of last Report.

We have collected from manufacturers, dealers and agents of commercial fertilizers in this State, for the year ending November 1st, 1883, $25,092.30. This sum represents the entire amount paid for the privilege of selling these goods in South Carolina, and the amount derived from this tax is used exclusively for the use and benefit of the Department. The whole amount collected was paid into the State Treasury, as will appear from financial statements at close of this Report and also from reports made to the Comptroller General.

During the season of 1882–83 the following regulations governed the sales of fertilizers in South Carolina:

1. All persons or companies engaged in the manufacture or sale of commercial manures are required to pay to the Commissioner of Agriculture twenty-five cents per ton on every ton of such commercial fertilizer sold or offered for sale in South Carolina.

2. Every bag, barrel or other package of such fertilizers or commercial manures shall have thereon a plainly printed label or stamp, which shall truly set forth the name, location and trade mark of the manufacturer, also the chemical composition of the contents of such package and the real percentage of any of the following ingredients asserted to be present,

to wit: Soluble and precipitated phosphoric acid, soluble potassa, ammonia or its equivalent in nitrogen, together with the *date of its analysis*, and that the privilege tax has been paid.

3. All chemical compounds sold or offered for sale, including burnt marl, kainit, ground bone, fish scrap, Peruvian guanos, are subject to the payment of the privilege tax.

4. Only the privilege tax tags issued by this Department are recognized as evidence of the payment of the tax.

5. Applications for tags should be made to the Commissioner of Agriculture, accompanied by the amount of tax and the name of the manufacturer of the fertilizer, where manufactured, the brand of the fertilizer for which they are to be used and the guaranteed composition of the same, together with the number of bags, barrels or packages to the ton. (If the fertilizer for which tags are desired has been imported, the name and location of the importer must be given.) Manufacturers and dealers are prohibited from using the tax tags on any brand of fertilizer unless this rule, as well as all others regulating sales, has been strictly complied with.

6. No tags will be furnished companies or individuals where the guaranteed percentage of either potash, ammonia or phosphoric acid is given with a greater margin than *twenty-five per cent.* over the *lowest* percentage given. (If the minimum is stated at two per cent. the maximum must not exceed two and a half per cent.) And the analysis branded on the package must correspond with the guaranteed analysis filed in the Commissioner's office.

7. All railroad companies and other common carriers are prohibited from *delivering* any commercial fertilizer that does not bear the prescribed tag, showing that the tax has been paid. This does not apply to the delivery by railroads to their *connections*, but to its delivery at points of final destination to guano agents or other consignees.

8. The samples of fertilizers to be analyzed by the Chemist of this Department will be drawn by an agent appointed by the Department from any lot sold or offered for sale, and at any point in the State.

9. The tags furnished by the Department are simply evidence that the *tax has been paid*, and manufacturers and dealers are prohibited from printing the brand of fertilizer, analysis or any other matter on them.

10. Any merchant, trader, manufacturer, agent or person who shall sell or offer for sale, or deliver after sale, or *receive*, any commercial fertilizer without having the labels and stamps prescribed by law shall be liable to a fine of ten dollars for each separate bag, barrel or other package sold or offered for sale, to be sued for before any Trial Justice.

11. All persons are warned against purchasing or receiving fertilizers or commercial manures that do not bear the privilege tax tag of this Department and other labels and stamps provided by law.

12. Manufacturers and dealers are requested to send the guaranteed analysis, &c., to be filed in this office, on a separate sheet of paper from their letters, or applications for tags, *and certified to by the manufacturer.*

13. Applicants for tags are requested to use the following form, which should be sent with letter enclosing amount of tax:

"We hereby make application for (number of tags) privilege tax tags, to be used on (brand of fertilizer,) which we propose to sell in South Carolina the present season. This fertilizer is manufactured or imported by (name of manufacturer or importer,) at (location of factory or office of importer,) and is put up in (number of) packages to the ton, and is guaranteed to contain:

"Ammonia, (minimum per cent.) to (maximum per cent.)

"Available phosphoric acid, (minimum per cent.) to (maximum per cent.)

"Total phosphoric acid, (minimum per cent.) to (maximum per cent.)

"Potash, (minimum per cent.) to (maximum per cent.)

"We certify that the above analysis is an exact transcript from the packages containing this fertilizer, and that the name of the manufacturer, or importer, and the location of factory, or office, and the date of the analysis of this fertilizer is stamped on each and every package of the same. Samples of this fertilizer can be obtained by the Department of Agriculture at (point of shipment.) Our agent at that place is (name of agent.)"

14. Privilege tax tags cannot be used upon any other brand of fertilizer than that for which they were purchased. Where parties are handling a number of brands, the guaranteed analysis, &c., of all the brands can be filed at the same time, and tags purchased at the time or subsequently during the season can be used on either of those brands, but it is a violation of the Regulations to use these tags on any brand until Rule 5 has been fully complied with.

Some changes may be made in the regulations governing the sales of fertilizers during the present season. If so, notice of the same will be given through the monthly bulletins of the Department and in such other manner as may be deemed necessary.

Manufacturers are requested to inform the Commissioner as early as possible where samples of their goods can be obtained, in order to facilitate the analysis the present season.

Very respectfully,

A. P. BUTLER,
Commissioner of Agriculture.

The chemical examination of commercial manures offered for sale being of such vital importance to the farmers of the State, it was determined to submit every brand on the market, if possible, to this test.

With this object in view, three agents were appointed for the purpose of drawing samples of fertilizers for analysis. One of these agents was assigned to the lower portion of the State, one to the middle and one to the upper, and they were instructed to procure samples of every brand offered for sale at every point visited and to report all violations of the law that they might detect. It may be well to explain here the system we have pursued for the protection of the farmers. To take a sample of any fertilizer at the place where manufactured would, evidently, not satisfy the consumer of the quality of the goods, because of the opportunity afforded manufacturers for so manipulating a sample that upon analysis would give very much higher results than would be obtained from a lot already in the hands of the purchaser or away from the factory and out of the power of the manufacturer to alter or change in any way. We therefore adopted the latter plan as one that would afford ample protection to farmers and honest manufacturers. Samples of the same goods were obtained in various sections of the State, and it was then in our power to ascertain whether the fertilizers were of the same grade at one place as another.

The rule adopted, upon the suggestion of Professor Shepard, was, that if the analysis of this Department showed a *commercial value* equal to the *commercial value* of the manufacturers' *minimum* guarantee, then no action would be taken against the dealers in such goods; but if our analysis showed lower results than the value of the *minimum* amount claimed, then other analyses of the same goods (from samples drawn in parts of the State other than the section from which the first or original analysis was made) were made, so that we might know whether the deficiency in the goods was general or only in an isolated case. If subsequent analyses were satisfactory, we did not proceed legally against the manufacturer, but published all the analyses for the information of the public; but if further investigations still exhibited unsatisfactory results, we announced that the parties would be proceeded against to the fullest extent of the law.

The agents sent out by the Department reported a considerable number of minor violations of the law by agents, who were selling without having the tags required to be attached to the packages, and by not having the sacks properly branded. They also reported railroad agents at several points on the different roads in the State for delivering fertilizers to consignees that did not bear the necessary labels and stamps. These reports, with written statements of the facts in each case, were referred to the Board, and the Commissioner was directed to confer with the Attorney General and be governed by his advice and his own judgment in deciding whether to institute proceedings against any of the parties or not. The Commissioner has corresponded with the railroad officials and others on the subject, and finds that while the law was in some cases clearly violated, none of them were of an aggravated nature, and most of them were probably due to ignorance. The Commissioner has not yet, however, conferred with the Attorney General, and no definite decision has, consequently, been reached in the matter.

Under all the rules heretofore issued by the Department, manufacturers were allowed, in branding their sacks, a margin of 25 per cent. between the minimum and maximum guarantee; that is, the package could be branded thus:

Available phosphoric acid	8 per cent.	to	10 per cent.
Ammonia	2 " "	"	2½ " "
Potash	1 " "	"	1½ " "

And if the fertilizer so branded was found by our Chemist to contain 8 per cent. of available phosphoric acid, 2 per cent. of ammonia and 1 per cent. of potash, it was regarded as having reached the guarantee and was satisfactory. When this rule, however, was adopted, manufacturers were warned not to take the *highest* percentage of any ingredient claimed for their minimum guarantee and then add 25 per cent. to that, but to let the maximum amount stated be just what they had a right to expect would be found, and avail themselves of the margin allowed only for the purpose of covering differences in analytical results. Very little attention was paid to this caution and quite a number of the fertilizers sampled showed a deficiency of from 5 to 25 per cent. below the *minimum.* To prevent this in the future, Prof. Shepard and our present Chemist, Mr. Chazal, both recommended that this rule be abolished and the manufacturers required to brand on their sacks only the minimum percentage claimed. Their views were adopted, and the following clause appears in the regulations governing sales of fertilizers for the present season, and this is the only change of much consequence from the rules heretofore in force:

"6. The practice permitted during the last season of branding on the packages both a minimum percentage and a maximum percentage [not more than twenty-five per cent. (25 per cent.) greater than the minimum] will not be allowed during the present season. Any goods not coming up to the guarantee on the bags are liable to seizure and condemnation, and manufacturers and dealers are warned that no allowances will be made for differences in analytical results. It is not allowed to brand on the packages the words 'and more,' or other words of the same purport, after the guaranteed percentages. The analysis branded on the package must correspond with the guaranteed analysis filed in the Commissioner's office. [See below Section 13.] No tags will be furnished companies or dealers violating any of the above provisions."

The following is a list of the fertilizers, acid phosphates, commercial manures and chemicals admitted to sale in South Carolina, season of 1882-3:

Acid Phos. (Crown Brand)........................		
Acid Phos........	Ashepoo Co....................	Charleston, S. C.

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1882-3:

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882–83.

Brand of Fertilizer.	Name of Manufacturer.	Location of Factory.
Acid Phosphate	Ashley Phos. Co.	Charleston, S. C.
Acid Phosphate	Etiwan Phos. Co.	"
Acid Phosphate	Wando Phos. Co.	"
Acid Phos. (Pelican)	Edisto Phos. Co	"
Acid Phosphate	Ashepoo Phos. Co.	"
Acid Phos. (Ga. State Grange)	Port Royal Fertz. Co.	Port Royal, S. C.
Acid Phos. (Navassa)	Navassa Guano Co.	Wilmington, N. C.
Acid Phos. (Zell's Cot.)	P. Zell & Sons	Baltimore, Md.
Acid Phos.	Georgia Chemical Works	Augusta, Ga.
Acid Phos. (Kernaghan's)	" " "	"
Acid Phos. (Cranston's)	" " "	"
Acid Phos. (Pomona)	Imported by Perry M. DeLeon	New York.
Acid Phos. (Hyman & Dancy's High Grade)	Hyman & Dancy	Norfolk, Va.
Acid Phos. (Edisto)	Edisto Phos. Co.	Charleston, S. C.
Acid Phos. (Cotton Brand High Grade)	Chas. E. Smith & Co	Wilmington, N. C.
Acid Phos. (High Grade)	Baugh & Sons	Philadelphia, Pa.
Acid Phos	Seal, Lawson, Kessler & Co.	Baltimore, Md.
Acid Phos.	Maryland Fertz. and Mfg. Co.	"
Acid Phos.	Raisin Fertz. Co.	"
Acid Phos.	John Merryman & Co.	Mantua Creek, N. J.
Acid Phos. (Star Brand)	Allison & Addison	Petersburg, Va.
Acid Phos. (Crown Brand)	" "	"
Acid Phos.	Ashepoo Co.	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Acid Phos. (Oriental)	Read & Co	Barren Island, N. Y.
Acid Phos. (Ga. State Standard)	J. D. Fairchild	Burling Slip, N. Y.
Acid Phos. (McGee & Son)	Edisto Phos. Co	Charleston, S. C.
Acid Phos	Stono Phos. Co	"
Acid Phos. (Crayton & Sons)	Edisto Phosphate Co	"
Acid Phos. (C. E. Lartigue)	" " "	"
Acid Phos. (Hill & Co.)	" " "	"
Acid Phos	Patapsco Guano Co	Baltimore, Md.
Acid Phos. (South Sea)	J. W. Harle & Co	Atlanta, Ga.
Acid Phos. (Paragon)	Long & Dugdale	Baltimore, Md.
Acid Phos	J. I. Middleton & Co	"
Acid Phos. (York's Favorite)	" "	"
Acid Phos	Navassa Guano Co	Wilmington, N. C.
Acid Phos	Russell Coe	Linden, N. J.
Acid Phos. (Wagener's)	Edisto Phosphate Co	Charleston, S. C.
Acid Phos	J. I. Middleton & Co	Baltimore, Md.
Agricultural Lime	Imported by French Bros	Rocky Point, N. C.
Albatross	Bowker Fertilizer Co	New York.
Alkaline Super Phos	Southern Fertilizer Co	Richmond, Va.
Americus Ammoniated Diss. Bone	Williams, Clark & Co	New York.
Americus Bone Super Phos. of Lime	" " "	" "
Ammoniated Bone Phos. (Oriental)	Read & Co	Barren Island, N. Y.
Ammoniated Bone Phos	E. Frank Coe	Burling Slip, N. Y.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ammoniated Bone Phos	Russell Coe	Linden, N. J.
Ammoniated Bone Phos	Ramspeck & Green by L. Seldner and Son	Atlanta, Ga.
Ammoniated Bone Super Phos	Seal, Lawson, Kessler & Co	Baltimore, Md.
Ammoniated Diss. Animal Bone	Baugh & Sons	Philadelphia, Pa.
Ammoniated Diss. Bone	Baldwin & Co	Newark, N. J.
Ammoniated Diss. Bone	John Merryman & Co	Baltimore, Md.
Ammoniated Diss. Bone	" "	Barren Island, N. Y.
Ammoniated Fertilizer (Edisto)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (McGee & Son)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (Crayton and Sons)	" "	" "
Ammoniated Fertilizer (C. E. Lartigue)	" "	" "
Ammoniated Fertilizer (R. E. Sloan's)	" "	" "
Ammoniated Fertilizer	Charleston Phosphate Co	" "
Ammoniated Fertilizer	Navassa Guano Co	Wilmington, N.C.
Ammoniated Phos	J. I. Middleton & Co	Baltimore, Md.
Ammoniated Super Phos	Preston Fertilizer Co	Green Point, Long Island, N.Y.
Ammoniated Super Phos. Lime (E. Frank Coe)	E. Frank Coe.	New York.
Atlantic Acid Phos	Atlantic Phosphate Co	Charleston, S. C.
Atlantic Ash Element	" "	" "
Atlantic Fertilizer	" "	" "
Arlington Guano	Dabman Bros. & Co	Baltimore, Md.
Ash Element	Ashley Phosphate Co	Charleston, S. C.
Ash Element	Etiwan Phosphate Co	" "

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ash Element	Stono Phosphate Co	Charleston, S. C.
Ash Element	Charleston Phosphate Co	" "
Ashepoo Fertilizer	Ashepoo Phosphate Co	" "
Ash Mixture	Wando Phosphate Co	" "
Bahama Soluble Guano	Walton, Whann & Co	Wilmington, Del.
Baker's Prepared Chemicals	Chemical Co. of Canton	Baltimore, Md.
Baker's Standard	" "	" "
Bald Eagle Guano	Georgia Chemical Works	Augusta, Ga.
Baltimore Crown Guano	Chesapeake Guano Co	Baltimore, Md.
Baugh's Raw Bone Super Phos	Baugh & Sons	Philadelphia, Pa.
Bell's Standard Ammoniated Acid Bone Phos.	G. Ober & Son's Co	Baltimore, Md.
Bradley's Ammoniated Diss. Bone	Bradley's Fertilizer Co	Boston, Mass.
Bremer Fertilizer	Read and Co	New York.
Calvert Guano	P. Zell & Sons	Baltimore, Md.
Capital Phosphate	Equitable Fertilizer Co	" "
Carolina Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
C. C. C. Cotton and Corn Compound	Ashley Phos. Co	" "
Chappell's Champion Ammoniated Super Phos	P. S. Chappell & Son	Baltimore, Md.
Chemicals	Baugh & Sons	Philadelphia.
Chesapeake Guano	Chesapeake Guano Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Chicora Super Phos	Preston Fertilizer Co	Green Point, Long Island.
Colgate Manure	Chemical Co. of Canton	Baltimore, Md.
Columbia Super Phos	Moses & DeLeon	" "
Cotton Food	Maryland Fertz. and Mfg. Co	" "
Cotton Seed Meal	Greenville Cotton Seed Oil Mill	Greenville, S. C.
Cotton Seed Meal	Catawba Oil Co	Chester, S. C.
Cotton States Soluble Phos	Long & Dugdale	Baltimore, Md.
Cranston's Ammoniated Diss. Bone	Georgia Chemical Works	Augusta, Ga.
Crescent Bone Fertilizer	Perry M. DeLeon	New York.
Crown Brand Guano	Allison & Addison	Petersburg, Va.
Cumberland Super Phos	Cumberland Bone Co	Boothbay, Me.
DeLeon's Complete Cotton Fertz	Perry M. DeLeon	New York.
DeLeon's Diss. Bone Phos	Imported by Perry M. DeLeon	" "
DeLeon's English Fertz	Perry M. DeLeon	" "
Diamond Soluble Bone	Walton, Whann & Co.	Wilmington, Del.
Dissolved Bone	Stono Phos. Co	Charleston, S. C.
Dissolved Bone	Wando Phos. Co	" "
Dissolved Bone Phos. of Lime	Pacific Guano Co	" "
Dissolved Bone Phosphates	G. Ober & Son's Co.	Baltimore, Md.
Dissolved So. Ca. Bone	Equitable Fertz. Co	" "
Dissolved S. C. Bone Phosphate	" " "	" "

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Dissolved Phosphate	Maryland Fertz. and Mfg. Co	Baltimore, Md.
Dissolved Raw Bone	G. Ober & Son's Co	" "
Dixie Guano	Raisin Fertilizer Co	" "
Double Eagle Phosphate	Baugh & Sons	Philadelphia, Pa.
Eclipse Phosphate	Baugh & Sons	Philadelphia, Pa.
Economical Fertilizer	" "	" "
Electric Guano	P. Zell & Sons	Baltimore, Md.
Enoree Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
Equitable Phosphate	Equitable Fertz. Co	Baltimore, Md.
Esmeralda Guano	" " "	" "
Etiwan Acid Phos	Etiwan Phos. Co	Charleston, S. C.
Etiwan Ash Element	" " "	" "
Etiwan Diss. Bone	" " "	" "
Etiwan Floats	" " "	" "
Etiwan Guano	" " "	" "
Etiwan Kainit	" " "	" "
Etiwan Potash Compound	" " "	" "
Eutaw Fertz	Ashepoo Phos. Co	" "
Excellenza Cotton Fertz	Long & Dugdale	Baltimore, Md.
Excellenza Soluble Phos	" "	" "
Farmer's Favorite Guano	Potomac Guano Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Farmer's Friend Fertilizer	Read & Co.	New York.
Farmer's Pride Fertilizer	B. J. Burgess & Co.	Alexandria, Va.
Fertilizing Lime	Imported by French Bros.	Rocky Point, N. C.
Fish Guano	Mapes Formula and Peruvian Guano Company	New York.
Fish Scrap	Ashepoo Phosphate Company	Charleston, S. C.
Floats	Etiwan Phosphate Company	" "
Georgia Ammo. Bone Phosphate	Kerchner & Calder Bros.	Wilmington, N. C.
Georgia Patapsco Ammoniated Soluble Phos.	Georgia Chemical Works	Augusta, Ga.
Georgia Patapsco Ammoniated Dissolved Bone	" " "	" "
Georgia State Grange Fertilizer	Baldwin & Co.	Newark, N. J.
Giant Guano	Raisin Fertilizer Company	New York.
Gibbs & Co. High Grade Ammoniated Phos.	Chas. E. Smith & Co.	Wilmington, N. C.
Good Luck Guano	The Geo. W. Miles Co.	Baltimore, Md.
Grange Guano	B. J. Burgess & Co.	Alexandria, Va.
Grange Mixture	Georgia Chemical Works	Augusta, Ga.
Ground Bone Dust, not fine	Baugh & Sons	Philadelphia, Pa.
Ground Phos. or Phos. Dust	Atlantic Phosphate Co.	Charleston, S. C.
Ground Phosphate	Ashley Phosphate Co.	" "
Ground Phosphate	Wando Phosphate Co.	" "
Guano Scrapings	Collected by S. C. R. R.	" "

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Inman's Imperial Guano	Williams, Clark & Co	New York.
Kainit	Imported by Atlantic Phosphate Co	Charleston, S. C.
Kainit	" " Ashley Phosphate Co	" "
Kainit	" " Etiwan Phos. Co	" "
Kainit	" " Ashley Phos. Co.	" "
Kainit	" " Stono Phos. Co	" "
Kainit	" " Wando Phos. Co	" "
Kainit	" " Dowie & Moise	" "
Kainit	" " Ashepoo Phos. Co	" "
Kainit	" " Kerchner & Calder Bros	Wilmington, N. C.
Kainit	" " Smith & Adger	Charleston, S. C.
Kainit	" " H. Bulwinkle	" "
Kainit	" " Boykin, Carmer & Co	Baltimore, Md.
Kainit	" " Edisto Phos. Co	Charleston, S. C.
Kainit	" " Alex. Kerr Bros. & Co	Baltimore, Md.
Kainit	" " Ashepoo Phos. Co	Charleston, S. C.
Kainit	" " Wilcox, Gibbs & Co	" "
Kainit	" " Charleston Phos. Co	" "
Kainit	" " Paul S. Felder	" "
Kainit	" " Navassa Guano Co	Wilmington, N. C.
Kainit	" " E. J. Powers	" "

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Kainit	Imported by Royster & Co.	Norfolk, Va.
Kainit	" " F. W. Wagener & Co.	Charleston, S. C.
Kainit	" " J. I. Middleton & Co.	Baltimore, Md.
Langston Cereal Plant Food	Maryland Fertz. and Mfg. Co.	Baltimore, Md.
Lobos Guano	Imported by C. S. McCall	Bennettsville, S. C.
Lockwood's Cotton Grower	Manhattan Chemical Co.	New York.
Long's Prepared Chemicals	Long & Dugdale	Baltimore, Md.
Lowe's Georgia Formula	Georgia Chemical Works	Augusta, Ga.
Lee's Prepared Agricultural Lime	A. S. Lee	Richmond, Va.
Mastodon Guano	Georgia Chemical Works	Augusta, Ga.
Mogul Raw Bone Super Phos	Baugh & Sons	Philadelphia, Pa.
Monarch Guano	Williams, Clark & Co.	New York.
McCall's High Grade Ammoniated Phosphate	Baugh & Son	Philadelphia, Pa.
Navassa Guano	Navassa Guano Co.	Wilmington, N. C.
Nassau Guano	Bowker Fertilizer Co.	New York.
New Process Dissolved Bone	Baugh & Sons	Philadelphia, Pa.
Nicholson's Premium Dissolved Bone	L. Seldner & Son	Baltimore, Md.
Norfolk Fertilizer and Insecticide	Styam, Whitehurst & Co.	Norfolk, Va.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83. CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
P. D. Fertilizer	Ashepoo Phosphate Co.	Charleston, S. C.
Pelican Bone Fertilizer	H. L. Baker & Co.	New York.
Peruvian Guano No. 1 Cotton	Imported by J. M. Hurtado	" "
Peruvian Guano No. 1 Lobos	" " "	" "
Peruvian Guano Guaranteed	" " "	" "
Peruvian Guano Lobos	" " A. B. Gibbs & Co.	" "
Peruvian Guano	" " J. M. Hurtado	" "
Peruvian Guano Standard	Imported	
Peruvian Guano Standard No. 1	"	
Piedmont Dissolved Bone Phosphate	Piedmont Guano Manufacturing Co.	Baltimore, Md.
Piedmont Special Fertilizer	" " "	" "
Pine Island Ammoniated Phosphate	Quinnipiac Fertilizing Co.	New London, Conn.
Planter's Favorite	Long & Dugdale	Baltimore, Md.
Planter's Fertilizer	Read & Co.	New York.
Planter's Friend Guano	"	" "
Plow Brand	Walton, Whann & Co.	Wilmington, Del.
Pomona Guano	Perry M. DeLeon	New York.
Premium Guano	Hyman & Dancy	Norfolk, Va.
Pure Dissolved Raw Bone	Baugh & Sons	Philadelphia, Pa.
Pure Ground Phosphate	Ashley Phosphate Co.	Charleston, S. C.
Pure Ground Raw Bone	Baugh & Sons	Philadelphia, Pa.
Pure Raw Bone Meal	" "	" "

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882-83.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Raw Bone Super Phos.	J. W. Harle & Co.	New York and Atlanta, Ga.
Robson's Cotton and Corn Fertz.	J. N. Robson & Son	Charleston, S. C.
Saluda Guano	Wando Phos. Co.	Charleston, S. C.
San Domingo Guano	Williams, Clark & Co.	New York.
Santee Fertilizer.	Edisto Phos. Co	Charleston, S. C.
Sea Fowl Guano	Detrick & Co	Baltimore, Md.
Sea Fowl Guano	Bradley Fertilizer Co.	Boston, Mass.
Sea Gull Guano	Patapsco Guano Co.	Baltimore, Md.
S. G. S.—Small Grain Specific	Ashley Phos. Co.	Charleston, S. C.
Soluble Ammoniate Super Phos. of Lime	G. Ober & Son's Co.	Baltimore, Md.
Soluble Guano	Ashley Phos. Co.	Charleston, S. C.
Soluble Pacific Guano	Pacific Guano Co.	" "
Special Fertilizer	Baugh & Sons	Philadelphia, Pa.
Special Mixture	" "	" "
Standard Fertilizer.	Standard Fertilizer Co.	Duxbury, Mass.
Star Brand Complete Manure	Allison & Addison	Petersburg, Va.
Sterling Ammoniated Diss. Bone	Read & Co.	New York.
Sterling Fertilizer	" "	" "
Sterling Guano	Manhattan Chemical Co.	" "
Stono Soluble Guano	Stono Phos. Co.	Charleston, S. C.
Twenty-Five Dollar Phos.	Baugh & Sons	Philadelphia, Pa.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1882–83.—CONCLUDED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Unicorn Ammoniated Super Phos.	Clark Cove Guano Co.	New Bedford, Mass.
Universal Ammoniated Diss. Bone	Williams, Clark & Co.	New York.
Victor Ammoniated Diss. Bone	Williams, Clark & Co.	New York.
Wagener's Ammoniated Diss. Bone	Read & Co.	New York.
Wagener's Fertilizer	" "	" "
Walker's Ammoniated Cotton Phos.	Raisin Fertz. Co.	Baltimore, Md.
Walker's Diss. So. Ca. Phosphate	" " "	" "
Wando Fertilizer	Wando Phos. Co.	Charleston, S. C.
Wheeless Excellent Guano	Georgia Chemical Works	Augusta, Ga.
Wilcox, Gibbs & Co.'s Manipulated Guano	Wilcox, Gibbs & Co.	Charleston, S. C.
" " " Super Phos.	" " "	" "
Yemassee Fertilizer	Ashepoo Phos. Co.	Charleston, S. C.
Zell's Ammoniated Bone Super Phos.	P. Zell & Son	Baltimore, Md.
" Economizer	" "	" "

Prof. C. U. Shepard, Jr., has executed all the analyses for this Department since its creation, and his connection with it has been entirely satisfactory and pleasant. He has endeavored in every way to aid the Department and increase its usefulness, and his services have been of great value; but, as his whole time could not be given to our work, he thought that it would be advisable for the Department to elect a Chemist whose services would be devoted exclusively to this work. The Board appreciated Prof. Shepard's suggestions, and in April of this year Mr. P. E. Chazal, E. M., was elected to fill the position. Mr. Chazal was highly recommended to the Board, and he brings to his office every requisite for the proper discharge of his delicate and onerous duties, and we think the people of the State are to be congratulated upon having one so thoroughly competent to guard their interests in the important matters that will come under his supervision.

Mr. Chazal's duties, briefly stated, will be to do such geological, mineralogical or other scientific work belonging to his Department, either in the laboratory or the field, as may be required by the Commissioner or Board of Agriculture.

Prof. Shepard's report on the analytical work of the past season is herewith submitted:

LABORATORY FOR ANALYTICAL CHEMISTRY,
No. 46 MEETING STREET,
CHARLESTON, S. C., Oct. 12th, 1883.

The Honorable Board of Agriculture of South Carolina, Columbia.

GENTLEMEN: I beg to herewith submit an account of the analyses executed in this laboratory, during the past season, on samples submitted for examination by the Department of Agriculture.

The total number of analyses was one hundred and ninety-nine; which may be classified as follows:

Acid phosphates	22
Acid phosphates with potash	33
Ammoniated acid phosphates	18
Ammoniated acid phosphates with potash	99
Ash elements	4
Floats	3
Kainites	5
Miscellaneous	15
Total	199

Below is given the *average* composition of each class, together with its average *commercial cash* valuation *in this city*, as established in conformity with the values assigned by the Department during the past season for the most important constituents of plant food found in commercial manures, and required by law to be determined therein.

The valuations of those constituents for the past season were as follows:

For *available* (*i. e.* soluble *and* reduced) phosphoric acid......	10c. per lb.
For *ammonia*, equivalent to the total nitrogen..................	25c. per lb.
For *potash*, *i. e.* soluble potassa....................................	6c. per lb.

To the objection that these valuations were higher than the prices actually obtaining during the season, especially as it advanced towards Spring, I would state that, owing to an excessive production of commercial manures, they were largely sold at cost, and even *at a loss*, rather than to be carried over to the following season. Obviously, an official valuation cannot be held responsible for such subsequent fluctuations.

It is to be noted that no value is assigned to phosphoric acid except that which is regarded as being "*available*" at the time of the investigation, and, it may be added, in conformity with the views of the very great majority of agricultural chemists. The content of "available" phosphoric acid has been uniformly determined by the so-called "Washington" method, which assigns availability to that phosphoric acid which is soluble in neutral citrate of ammonia under certain prescribed conditions.

The failure to give a commercial valuation to phosphoric acid other than available, as above described, unquestionably does injustice to phosphatic manures, since this description of phosphoric acid (termed "undecomposed" or "insoluble") represents an actual cost of from two to five cents per pound, according to its degree of mechanical pulverization and the consequent expense of its production.

AVERAGE COMPOSITION AND COMMERCIAL VALUATION OF EACH CLASS OF COMMERCIAL MANURES FOR THE SEASON 1882–3.

ACID PHOSPHATE.

	p. c.
Phosphoric acid soluble in water..............................	8.76
"*Reduced*" phosphoric acid....................................	2.52
"*Available*" phosphoric acid....................................	11.28
"*Undecomposed*" phosphoric acid..............................	2.47
Total phosphoric acid..	13.75

Commercial valuation, $22.56.

ACID PHOSPHATES WITH POTASH.

	p. c.
Soluble phosphoric acid	7.35
Reduced phosphoric acid	2.83
Available phosphoric acid	10.18
Undecomposed phosphoric acid	2.45
Total phosphoric acid	12.63
Potash	1.55

Commercial valution, $22.22.

AMMONIATED ACID PHOSPHATES.

	p. c.
Soluble phosphoric acid	6.39
Reduced phosphoric acid	2.84
Available phosphoric acid	9.23
Undecomposed phosphoric acid	2.95
Total phosphoric acid	12.18
Ammonia, equivalent to total nitrogen	2.77

Commercial valuation, $32.31.

AMMONIATED ACID PHOSPHATES WITH POTASH.

	p. c.
Soluble phosphoric acid	5.60
Reduced phosphoric acid	2.57
Available phosphoric acid	8.17
Undecomposed phosphoric acid	2.64
Total phosphoric acid	10.81
Ammonia, equivalent to total nitrogen	2.63
Potash	1.53

Commercial valuation, $31.33.

"ASH ELEMENTS."

	p. c.
Phosphoric acid insoluble in water, but soluble in neutral citrate of ammonia (Washington process,) and consequently regarded as chemically similar to "reduced" phosphoric acid in acidulated manures	3.68
Phosphoric acid insoluble in both water and neutral citrate of ammonia, and consequently regarded as undecomposed	4.71
Total phosphoric acid	8.39
Potash	3.63

Commercial valuation, $12.72.

In the above instance, as also in the following class, the current method of valuation is entirely at fault, inasmuch as no value is given to the undecomposed phosphoric acid, which constitutes a very important factor in the cost of the articles. In fact, "floats" can hardly be sold at a profit for quadruple the commercial valuation of its "reduced" phosphoric acid, viz., for $5.74, on the average of last season's samples.

"FLOATS."

	p. c.
"Reduced" phosphoric acid	2.87
"Undecomposed" phosphoric acid	22.43
Total phosphoric acid	25.30

KAINITES.

	p. c.
Potash	12.84

Commercial valuation, $15.41.

There were, in addition, fifteen miscellaneous samples of natural guanos, ground bone, fish and ash mixtures, &c., &c., which are difficult to classify. On comparing the above given averages with those of the previous year, I fail to find any noteworthy change.

In addition to the above examinations, several investigations have been carried on in the domain of agricultural chemistry, the results of some of which will probably be ready for publication in the next Annual Report of the Department.

With great respect,
Your obedient servant,
CHARLES U. SHEPARD, Jr.

REPORT OF STATE CHEMIST.

Hon. A. P. BUTLER, *Commissioner.*

DEAR SIR: I beg leave to report, that soon after having assumed—on May 1st last—the office of Chemist of your Department, I procceeded to New York and there selected and ordered the apparatus necessary for the fitting up of a chemical laboratory, with special regard to facilitating the main chemical work of the Department, the analysis of the commercial manures inspected by it. The delays connected with the repairs necessary to be made on the building in which the laboratory is to be located have prevented its completion ere this. But the repairs are now so far advanced that the middle of December—at the latest—will find everything in readiness for analytical work. The time not occupied with the construction of the laboratory I have been enabled, through the courtesy of Prof. Charles U. Shepard, Jr., of Charleston, to devote, partly in conjunction with himself and partly alone, to some important analytical investigations on the subjects of phosphoric acid and nitrogen. The results obtained in the experiments on phosphoric acid have been too indeterminate to warrant publication without further investigation and will be omitted for the present. The results of our investigations on the subject of nitrogen are embodied in an article on "Available Nitrogen" by Prof. Shepard and myself, which I beg leave to submit herewith for your consideration.

The *commercial* valuations of the essential constituents of fertilizers for the approaching season will be as follows:

	PER LB.	PER UNIT.
Potential ammonia	16 cents.	$3 20
Soluble and reduced phosphoric acids	7½ cents.	1 50
Potash	6 cents.	1 20

All calculations are based on the ton of 2,000 pounds.

I take this opportunity of expressing my deep appreciation of and thanks for the courtesy of Prof. Shepard, who placed his laboratory at my disposal for any investigations or work I might desire to carry on.

I have the honor to be,
Very respectfully,
PHILIP E. CHAZAL, E. M.,
Chemist to Department of Agriculture.

AVAILABLE NITROGEN.

[By Charles U. Shepard, Jr., and Philip E. Chazal, E. M.]

Prefatory.

During the past ten years the agricultural world has been pretty thoroughly indoctrinated with the general nature and value of *available* phosphoric acid; and, leaving aside minor points of difference in both theory and practice, the following opinions are very commonly accepted as having been well established by actual experience under ordinary agronomic conditions:

1. All phosphoric acid *soluble* in water is available to vegetation.

2. Of phosphoric acid *insoluble* in water, some is available; the rest is either not, or, at best, very slowly. In respect to that phosphoric acid which is regarded as available, notwithstanding its being insoluble in water, the idea is generally entertained that its solution by and in the water occurring in the soil, and perhaps partially through the instrumentality of the plant rootlets, must precede its absorption by vegetation. And, in fact, we know that under ordinary agricultural conditions soluble phosphoric acid reverts to an insoluble state on its incorporation with the average soil, and consequently that its assimilation follows: first, its loss of solubility, and, secondly, its solution by the agencies above enumerated.

Consequently there is scientific basis for the opinion, which has latterly made such headway, that some sorts of phosphoric acid, although insoluble in water, are as valuable agriculturally as those which are actually soluble. In either case the soil processes exert considerable influence on their preparation for and absorption by plants.

The attention of agricultural chemists has very naturally been drawn more and more to the desirability of adopting some satisfactory method for the determination of available phosphoric acid; and if at present considerable divergence of opinion and practice exists among them, it must be regarded as the result of a perfectly healthy zeal to attain that truth which is usually grasped only after long experimentation. The vexation and chagrin incidental to the existing lack of harmony bear harshly on all concerned; nevertheless, it has thus far proven impossible to adopt a method, even provisionally, in which all will concur.

These introductory remarks on available phosphoric acid appear pertinent to us in presenting a kindred topic, viz., available nitrogen, and we believe the resemblance will be recognized in our consideration of the subject.

Nitrogen in Commercial Manures.

The sources of nitrogen in plant food may be natural or artificial. The natural ones embrace:

1. That combined nitrogen formed in the atmosphere by electrical discharges, by the evaporation of water, as an accompaniment of combustion or oxidation, and finally by the action of light. Such combined nitrogen, principally in the form of ammonia and nitric acid, is precipitated upon the soil by atmospheric condensations.

2. Soil-nitrogen, the result of the decay of vegetable and animal matter, in a great variety of compounds, extending from the very complex albuminoids in recent dead organisms to the terminal products of decomposition, viz.: ammonia and nitric acid; soluble nitrogenous salts coursing in the soil water or physically held by the soil; and, possibly, the uncombined nitrogen of the soil-atmosphere, believed by many to be susceptible of fixation by the soil or the growing plant under certain favorable conditions.

The natural tendency of soils is to accumulate combined nitrogen—the design of agriculture to deplete them in this particular ingredient, since it constitutes the criterion by which we value all food crops. A wise system of agriculture strives to restore that which it removes from the soil, and, especially, those elements of plant-food whose accumulation in the soil is naturally slow or limited. On this depends the very ancient practice of returning to the soil that which was originally taken from it, after it has served its purpose in nourishing man and beast, viz., animal manure. Unfortunately, what is thus restored by no means compensates for the amount of nitrogen abstracted by the crops, nor would it, even if the bodies of those sustained by the soil were restored to it.

To at least partially recompense the soil for its loss by cropping, combined nitrogen fills an important place in every complete fertilizer, and the forms in which it is employed are as varied and yet the same as the natural sources of nitrogen in plant-food, viz., inorganic matter containing nitrogen, animal and vegetable nitrogenous substances. Those most commonly employed are:

Sulphate of ammonia..................... Nitrate of soda............................	Mineral or inorganic compounds.

Peruvian Guano, a partially mineralized substance.

Bones, meat, fish, blood, wool, horn and leather.	Nitrogenous animal matter.
The seeds and other parts of many plants, either before or after their expression for oils, sugar, &c.	Nitrogenous vegetable matter.

Stable and other domestic manures, muck and similar nitrogenous matters, which ought not to enter into the category of commercial manures, fail to fall within the scope of this examination.

Soluble and Insoluble Nitrogen.

The above enumerated descriptions of nitrogenous matters, which are agriculturally employed for the enrichment of the soil, may be divided into groups according to their solubility in water. Those entirely soluble constitute a small class and are inorganic. A likewise limited group, composed of Peruvian and similar guanos and of certain organic matters—such as blood—when dried at a very low temperature, is partially soluble in water. The third and largest class comprises those insoluble in water, such as the stored-up albuminoids contained in the meat of beast and fish or in the seeds of plants. Some of the latter group possess high nutritive qualities, as meat or expressed seeds, whilst others are regarded with great distrust, as leather or wool.

There is reason to believe that solubility in water plays an important part in the availability of nitrogenous plant-food. We know that nitrate of soda and sulphate of ammonia may be regarded as assimilable vegetable pabulum. Experience has demonstrated that dried blood, fish, cotton seed and others of those previously enumerated, which, if not soluble, at least lose their forms and become pulpy in water, are to be regarded, under many agricultural conditions, as not inferior to the inorganic nitrogenous compounds constituting the soluble class. Again, those which either naturally (as wool or hair) or artificially (as leather) possess the property of resisting the action of water, constitute the "*bete noire*" of alike agricultural chemist and planter.

Few and, for our purpose, unimportant nitrogenous organic compounds have been demonstrated, experimentally, as susceptible of assimilation by plants, and, indeed, the opinion widely prevails that essentially all the nitrogen abstracted by vegetation from the soil is in the form of either salts of ammonia or nitrates. Consequently, the determination of the comparative solubility of organic nitrogenous matters, as a means of establishing their relative availability, does not imply the assimilability of the dissolved matter. And yet, to a certain extent, it may be regarded as furnishing us with an important guide as to the ease with which they are acted upon, and, inferentially, of their liability to disruption in the soil. Under ordinary agricultural conditions, viz., with a plentiful supply of moisture, warmth, atmospheric oxygen and certain *ferments*, they decay in the soil, and are ultimately resolved, through a number of intermediate, but little known stages, into carbonic acid, ammonia or nitric acid and water.

In view of the vast differences in their potentialities, it had become very desirable to distinguish between these various nitrogenous organic matters. No longer did it suffice to separate them by their relative solubility in water; neither does the estimation of their total nitrogen afford any insight into their efficiency, since a comparatively worthless article may be materially richer in this ingredient than an actually productive compound; nor finally, in the estimation of some of us, is there much hope of success from the employment of the microscope in these investigations, since, as we shall later see, the chemical and mechanical processes to which the crude matters are subjected tend to destroy or change the cellular forms by which we would detect them. And thus we are impelled to try every method offering any promise of subserving our aim; which is the discrimination of available nitrogen, more especially in an insoluble condition.

Dr. Morgen's Experiments on the Decomposibility of Certain Organic Manurial Substances Containing Nitrogen.

(Die Landwirthschaftlichen Versuchs-Stationen, 1880, pg. 51.)

Dr. Morgen's attention was attracted to the fact that the various nitrogenous, organic manurial matters exhibit a very great difference in regard to the rapidity with which they are decomposed and become soluble in the soil. He believed that the cause of this difference might be found therein; that whilst these substances consist largely of the so-called albuminoids, their actual composition differs very materially by the prominence of some particular chemical compound in each. Thus, bones contain especially osseine; blood contains fibrine; horn contains keratine; meat contains myosine—each of which, possessing differences of chemical behavior, is able to impart its own peculiarities to the matter in which it plays the principal *role.*

Dr. Morgen selected, as the material of his experiments, ground leather and horn; both of them refuse products from the respective industries. At the outset, horn is an unchanged animal matter, but leather has been subjected to the process of tanning, *i. e.*, to treatment with tannic acid. But both of these materials had been prepared for manurial purposes by a preliminary steaming and roasting, whereby the leather loses some of its tannic acid. Introduced into German agriculture, the ground horn (or "meal") has given satisfaction under certain conditions, but the leather-meal has encountered much opposition. And, indeed, this should not cause surprise, since the process of tanning is especially designed to enable hides to resist water and decay.

Our limited space forbids the reproduction in full of Dr. Morgen's very interesting experiments. His general plan was to subject leather meal (containing 7.58 p. c. of nitrogen) and horn meal (containing 13.74 p. c. of nitrogen) to decomposition, observing the same conditions of temperature and moisture; in one series of experiments with and in another without the addition of liquid manure from a privy. As results, he found that there was dissolved—in the leather meal a little more than ⅓ of the nitrogen; in the horn meal a little more than ⅔ of the nitrogen. Dr. Morgen's conclusions were as follows:

1. The extent of decomposition in horn and leather meals is very different.

2. Horn meal is more readily decomposed by putrefaction than leather meal, since it yields in shorter time more soluble nitrogen.

3. Of the dissolved nitrogen, the content of ammoniacal compounds is greater in the case of the horn meal than in that of leather meal.

4. Very material variations in the method of the examinations as regards concentration, duration of putrefaction and the addition of matter to accelerate decay did not alter the second and third conclusions.

(Dr. Morgen found that decomposition in the presence of bacteria obtained from privy liquor was more energetic in converting nitrogen into ammonia.)

5. As a whole, these investigations corroborated the practical experience that leather is less valuable for manurial purposes than horn meal, and that this inferiority is due to its greater resistance to decay, and, consequently, its slower and less complete decomposibility.

Dr. Petermann's Experiments on the Manurial Value of Leather.

(Jahresbericht der Agricultur-Chemie, 1881, p. 255.)

Dr. Petermann instituted pot experiments on oats with leather (containing 7.51 p. c. of nitrogen), as also with dried blood (containing 13.7 p. c. of nitrogen), using in each case the same weight of nitrogen, both alone and with precipitated phosphates and potash salts. The addition of the leather produced no material gain over the pots which had not received nitrogenous enrichment; whereas the blood gave from 50 to 100 per cent. increase. His experiments with white beans were equally unsuccessful so far as the leather was concerned. With sugar beets, the addition of leather and phosphates increased the yield about 10 per cent. over the unmanured pots, and about 8½ per cent. over those receiving the simple phosphatic enrichment. In these last experiments saltpetre afforded a gain of over 25 per cent. Dr. Petermann was of the opinion that in subsequent years the effect of the leather would be more marked.

Stutzer's and Klinkenberg's Experiments on the Decomposibility of Nitrogenous Animal Matters Used for Manurial Purposes.

(Journal fur Landwirthschaft, 1882, page 363.)

These gentlemen have presented a method for the approximate determination of the manurial value of nitrogen in organic compounds, which appears to be especially appropriate for many cases, and which imitates the decomposition in the soil without the intervention of any intensely acting chemical reagent. They call attention to the fact that organic nitrogenous matter must be dissolved, and, after passing through a simplification of constitution, be converted into ammonia and nitric acid, before it can serve as plant food; and that these changes are probably due to a fermentation induced by certain spores and low animal organisms. The method of their investigations was that previously pursued by them in studying the effect of certain animal ferments, more particularly the gastric juice, on various albuminous substances.

Method of Examination.

Preparation of the Reagent.—The mucous membrane of a hog's stomach, separated from the muscular envelope, is cut into small pieces with the scissors, placed in a glass balloon or wide-necked bottle, treated with five litres of water and seventy-five c. c. m. of 10 per cent. muriatic acid, allowed to stand (with frequent shakings) for two or three days, and then filtered through a flannel sack, without being pressed, and finally through common filter paper. If it is designed to keep the gastric juice (or pepsine solution) for some months, it is well to add 2½ grms. of salicylic acid to the reagent prepared from each stomach. This addition makes it possible to keep the pepsine solution for months and even during the highest Summer temperature.

Application.—Two grams of the substance under examination are treated in a suitable beaker with 250 c. c. m. of the pepsine reagent, covered with a watch-glass, and warmed in a water-bath at 40° C. for twelve continuous hours, with additions every two or three hours of sufficient dilute hydrochloric acid (10 per cent.) to gradually raise the amount of hydrochloric acid in the contents of the beaker to one-half of one per centum by the end of this period. If the process be started in the early morning and concluded in the early evening, it may be allowed to cool down over night without injury. On the next day the temperature of the water-bath is again raised to 40° C. and there maintained for another period of twelve hours, with the successive addition, at regular intervals, of enough dilute hydrochloric acid to raise the content of dry acid to one per centum at the close of the operation.

The insoluble portion is then filtered through a small filter of Swedish paper, thoroughly washed with cold distilled water and then with strong alcohol. It is dried at 100° to 110° C., and finally burnt with the filter after the customary manner, for determining nitrogen. The amount of nitrogen in the filter having been previously ascertained and deducted, the resultant nitrogen is that which is *insoluble.* The difference between one-half of this amount and the percentage of nitrogen contained in the original substance represents the percentage of nitrogen dissolved during the process. Messrs. Stutzer and Klinkenberg do not claim that this method can be regarded as an exact imitation of the process of decomposition which nitrogenous organic matter undergoes in the soil, or that solution takes place after the same manner. If the conditions are not the same, they nevertheless possess similarity, since in each case the action is probably due to fermentation. But they maintain that this method will be found very useful in any attempt to determine the availability of nitrogenous organic matters.

Stutzer's and Klinkenberg's Results.

Operating upon the following substances, they obtained the results below given:

NITROGENOUS ORGANIC MATTERS EXAMINED.	CONTAINING TOTAL NITROGEN.	OF 100 PARTS NITROGEN CONTAINED IN EACH SUBSTANCE.	
		Were Dissolved. *Parts.*	Were Not Dissolved. *Parts.*
	Per Cent.		
Blood meal	13 53	89.75	10.25
Leather meal	6 90	39.19	60 81
Horn meal, (roasted)	13.70	40.73	59.27
Rasped raw horn	7.06	23 43	76.57
Poudrette, ("Liernur.")	6.77	80.23 a 83.36 b	19.77 16 64
Poudrette	1.58	22.92	77.08
Raw bone meal	4.02	95.45	4.55
The same	3.94	97.95	2.05
Steamed bone meal	4 31	92.74	7.26
The same	2 43	88.35	11.65
Crude Peruvian guano	11.08	94.53 b	5.47
Wool waste	10 55	2.72	97.28
"Dissolved" wool waste	12.37	85.34	14.66

a. Without special treatment with borax.
b. With special traatment with borax.

These results agree remarkably with those obtained in actual field experiments. Blood-meal, which affords the highest result of soluble nitrogen, being generally regarded as one of the most valuable nitrogenous manures; whilst leather-meal gave a result in remarkable harmony with that found by Dr. Morgen, and, as regards its efficiency, in agreement with Dr. Petermann's experiments. In the case of horn-meal from roasted horn Morgen obtained higher results on soluble nitrogen than did these investigators, but the discrepancy is probably due to differences in the mode of preparation of the samples examined. When horn is first steamed and then roasted it will probably afford better results both analytically and practically. In regard to wool waste an enormous difference appears between the crude and the "dissolved," this form of preparation being made by moistening the waste with concentrated sulphuric acid and then drying and grinding it. Steamed bones afford less soluble nitrogen, because the very process of steaming removes some of the nitrogen, and probably that which would be first dissolved by this method of investigation. And yet Messrs. S. & K. regard steamed bones as more valuable agriculturally, since they contain less fat and are softer—hence more readily decomposed in the soil.

Our Own Experiments.

Recognizing the great possibilities of this line of experimentation, we have instituted a number of analytical observations on the nitrogenous organic materials usually employed in this country, as also on some new ones, with a view of testing the applicability of the method for determining the availability of the nitrogen contained in them. Some of our results are given below. In addition thereto we have made a number of experiments on such mixtures as are liable to occur in the ordinary (commercial) ammoniated fertilizer, a few of which we append. In regard to the others, we were not able to arrive at a satisfactory conclusion; and before our investigations could be repeated and extended we were obliged to suspend for the present the further prosecution of this subject. Nevertheless we hope at some future time to be able to complete our report. The results obtained by us were as follows:

NITROGENOUS ORGANIC MATTERS AND MIXTURES EXAMINED BY SHEPARD AND CHAZAL. DESCRIPTION:	CONTAINING OF TOTAL NITROGEN.	OF 100 PARTS OF NITROGEN CONTAINED IN EACH SUBSTANCE	
		Were Dissolved. *Parts.*	Were *Not* Dissolved. *Parts.*
	Per Cent.		
(1) Dried Blood (pre-eminently red)	15.19	99.81	0.19
(2) Dried Blood (pre-eminently black)	14.49	78.61	21.39
(3) Dried and ground fish-scraps after expression of oil	11.56	88.67	11.33
(4) Dried animal matter from slaughter house	12.84	61.29	38.71
(5) Dried flesh (principally muscular)	14.17	93.32	6.68
(6) Dried Limulus Polyphemus (King Crab) shell and all. Said to be abundant in supply	12.15	52.10	47.90
(7) Acidulated Fish-scrap	7.14	84.59	15.41
(8) Roasted Leather Meal	9.92	37.80	62.20
(9) Cotton Seed (pressed and ground)	7.76	83.18	16.82
(10) The above after extraction of remaining oil by the Bisulphide of Carbon	8.56	85.67	14.33
(11) Cotton Seed, simply ground, neither linted, pressed nor cleaned	4.23	83.10	16.90
(12) Mixture, ⅓ Cotton Seed Meal, ⅓ Kainite and ⅓ English Acid Phosphate	2.66	88.35	11.65
(13) Mixture, ⅓ Cotton Seed Meal, ⅓ Kainite and ⅓ Phosphate Dust (Floats)	2.78	79.14	20.86
(14) Acid Phosphate ammoniated with leather meal and dried out with burnt marl*	1.70	30.25	69.75
(15) Acid Phosphate ammoniated with No. 4, and dried out with burnt marl*	2.14	85.80	14.20
(16) Mixture Acid Phosphate, Kainite, Nitrate of Soda, Sulphate of Ammonia and No. 8	3.18	52.99	47.01
(17) The same, except with No. 1, instead of No. 8	3.10	90.32	9.68
(18) The same, except with No. 4, instead of either 8 or 1	2.74	74.50	25.50

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*In both of these cases the ammoniating matter was thoroughly soaked with acid before adding the phosphatic powder. The acid employed was of 50° B. strength.

On these results we would, at present, make the following comments:

1. The first sample of (red) blood was almost entirely dissolved on each of two trials.

2. The second sample of (black) blood left a considerable residue on each of two trials.

3. This sample of dried and ground fish-scrap was an exceedingly well prepared one.

4. This sample had been through the process of "rendering" with superheated steam, which may have removed some of the "available" nitrogen.

5. A very admirable preparation of dried meat-scraps.

6. The King-Crab was chopped into bits and then dried, shell and all. Although quite nitrogenous, it does not appear to be "*available.*" Perhaps after the extraction of its oil, it might prove more so.

7. A sample of acidulated fish-scraps. Had this article been as well prepared as No. 3, the results might have proven better.

8. An excellent article, so far as preparation goes, and one capable of being used in the fertilizer trade without much fear of detection. The result agrees with that obtained by Stutzer and Klinkenberg.

9, 10. The extraction of the oil remaining in No. 9 increases relatively its content of nitrogen, as also it availability.

12, 13. The cotton seed in these mixtures affords about the same amount of available nitrogen as it does by itself, although that mixed with the acid phosphate yielded the best results of any.

14. It will be noted that this treatment of the leather-meal did not improve its solubility.

15. Whereas the same treatment increased the availability of the dried animal matter.

16. The mixture was proportioned to contain about 2 p. c. of nitrogen from leather alone; and, throwing out of the calculation the rest of the nitrogen, it will be found that about 25 p. c. of the leather's nitrogen was dissolved. This result agrees with No. 14 rather than with No. 8.

17. Mixture calculated to contain about 2 p. c. of nitrogen from No. 1, (dried blood.) Throwing aside the nitrogen due to the presence of nitrate of soda and sulphate of ammonia, it will be seen that 85 p. c. of the nitrogen due to the dried blood was dissolved.

18. Mixture calculated to contain about 2 p. c. of nitrogen from No. 4, (dried animal matter.) Here 35 p. c. of the nitrogen in the dried animal matter failed to be dissolved, which agrees quite tolerably with result No. 4, (38.71 p. c.)

Our conclusion, based on the preceding results, leads us to believe that this method may probably be developed into an useful adjunct in the examination of nitrogenous organic matters, and possibly in that of the ordinary commercial manures containing nitrogen. Already we believe that it is susceptible of improvement, and we do not doubt that it will experience material modification in the hands of those analytical chemists who may try it. To them we would commend it as a very interesting mode of investigation. Ultimately it may prove of value to the agricultural public.

PHOSPHATE DEPARTMENT.

The Reports of the Comptroller General and Commissioner of Agriculture in former years have dealt so fully and in detail with the subject of the phosphate mines, that it is deemed unnecessary to again refer to the matter, except to mention such action as the Department of Agriculture has taken in connection therewith during the present year.

In the Annual Report of 1882 we alluded to steps that had been taken to ascertain the right and interest of the State in certain disputed territory and for the recovery of any royalty that legal investigations might show to be due, and the matter has been pressed vigorously by the able counsel retained to represent the State. The Special Assistant's report contains very full information on the present status of the cases.

All litigation, of even a trifling nature, is expensive, and when it involves large interests between the State and wealthy corporations the expense is correspondingly increased; and while this fact was realized by the members of the Board of Agriculture, they felt that, in a matter involving interests of such magnitude, they had no discretion. By Acts of the Legislature the whole duty of protecting the rights of the State in the phosphate territory has been devolved upon the Department of Agriculture; and when it was found, after proper and careful investigation, that the State was being deprived of its revenue and its territory was being trespassed upon, they immediately took steps to stop it and prevent its recurrence in the future. In doing this, however, it has been necessary to draw heavily on the fund collected for the support and maintenance of the Agricultural Department, and has to some extent crippled the operations of the Department for the present year.

We do not believe that the Legislature, in transferring these duties to this Department, expected that it would require so large a portion of the fund of the Department to enforce the rights of the State; but after the duty was imposed the Board could not hesitate to execute the laws as they found them, and rely upon the Legislature to make some provision for the reimbursement to the Department of the amount expended, when it was shown that they had acted as the law directed. As will be explained more fully hereafter, the Department has recovered $4,983.46 of royalty that, but for the investigations made by the Board and Commissioners, would not have been paid. But, besides recovering this amount, the principle has been established that will give an annual increase of about $5,000 per annum upon the rock mined by a single company. This amount, however, has been paid directly into the State Treasury and applied to the general expenses of the Government, *and no part of it has been available for the use or benefit of the Agricultural Department.*

The Department is supported exclusively by the tax on commercial fertilizers, and the amount of this tax is always uncertain, from the fact that it depends upon the sales of fertilizers, and the amount of these sales can never be definitely known until after the season has closed. But for the past four years it has been ample for all the ordinary expenses of the Department, and by strict economy we were able to accumulate a balance for enlarging the future operations of the Bureau in its various branches. This balance, however, has been exhausted by the phosphate litigation and other unusual expenses, which are explained more fully in another part of this Report.

We think, therefore, considering all the circumstances, that all the expenses incurred in this litigation should be paid back to the Department from the phosphate royalty. We have expended for this purpose $4,233.14 in two years, and, as already explained, there has been paid into the State Treasury, as the result of the Board's investigations, $4,983.46, and as much more will be paid during the present year.

If, therefore, the amount paid from our fund is refunded, it will still leave a balance in the Treasury in favor of the State of $750.35 of the amount *already* paid.

The Act of the Legislature passed in February, 1882, prescribed that the phosphate royalty should be "estimated upon the crude rock and not upon the rock after it had been steamed or kiln dried." As there appeared to be some difficulty in complying with this law, and because they believed that they were exempt from its provisions, the Coosaw Company did not observe it and continued to make their returns upon the dried rock, and paid the royalty which the law contemplated should be paid upon crude rock. The Commissioner reported this fact to the Board and he was directed to refer the matter to the Attorney General for his opinion. After a most exhaustive examination of all the legal points raised by the company, the Attorney General filed the following opinion, which, together with the other papers submitted in connection therewith, covers the whole case so completely as to render further explanation unnecessary:

OFFICE OF THE ATTORNEY GENERAL.

To the Commissioner and Board of Agriculture:

In response to the request for my opinion as Attorney General, "if, under any charter, grant, permit or other agreement with or authority from the State, the *Coosaw Mining Company* is exempt from the provisions of the law which requires companies mining phosphate rock and phosphatic deposits to pay to the State a royalty of one dollar per ton on crude rock and one dollar and ten cents on steamed or kiln dried rock," I have the honor to reply as follows:

I addressed a communication to Mr. Robert Adger, chief manager of the Coosaw Mining Company, stating the question submitted to me by you, and requesting him to inform me whether his company claims any such exemption; and, if so, upon what grounds such claim is based; in order that I might be in possession of the facts before giving an opinion on the question submitted. Mr. Adger replied, enclosing me the opinion of Edward McCrady, Esq., senior counsel of the company, as setting out briefly the position of the Coosaw Company.

A copy of this correspondence is herewith enclosed.

Mr. McCrady advises Mr. Adger to answer my inquiry, "that the company does not claim any *special exemption* from the provisions of the law referred to, because it maintains that there is no such provision of the law to make the company liable to such payment that you know of, and there is no right or authority given by law to any Board or officer to claim such royalty from them."

Mr. McCrady further states that the Coosaw Company has, from the first grant in 1870, paid the royalty imposed on it in the same manner, except as changed by the Act of 1876 as to the time of payment, by the addition to the words "dug, mined and removed," used in the Act of 1870, of the words "shipped or otherwise sent to market;" and that they have continued to pay one dollar per ton, whether crude or dried, upon every ton shipped or sent to market, and this they consider is all they are bound to pay under the provisions of the law, and they know of no provisions of the law making the company liable otherwise than as heretofore.

That the Act of 1878, chartering certain companies therein named, with the privilege of mining phosphate rock in the navigable waters of the State, and requiring them to pay the royalty of one dollar per ton on crude rock and one dollar and ten cents per ton on dried rock, and the Act of 1878, authorizing general rights to be granted to mine in the navigable waters of the State, and requiring the last mentioned royalty, are the only Acts in which a royalty of one dollar and ten cents is provided for, and neither of these Acts is applicable to the Coosaw Company.

The first provision made in relation to "royalty" upon phosphate was in the Act, March 1st, 1870, (XIV S. L., 381,) granting to certain persons therein named, and their assigns, the right to dig and mine in the navigable waters of the State phosphate rocks and deposits. This grant was made upon the express condition that said grantees shall pay to the State the sum of one dollar per ton for every ton of phosphate rock and phosphatic deposits dug, mined and removed from the navigable rivers and waters of the State.

"The Coosaw Mining Company is a joint stock and not an incorporated company. In 1870 it purchased or leased a part of Chisolm's Island, on Coosaw River, and there located its works and machinery and commenced mining operations in Coosaw River, by virtue of an agreement with the Marine and River Company, under the license or right granted by the State to that company" (under the Act 1st March, 1870.) "During the earlier portion of its career it made its returns and paid the royalty to the Marine and River Company. Subsequently it executed its own bond to the State in the sum of $50,000, and made its returns and paid directly to the State." (Report of Attorney General Conner concerning the phosphate interests of the State in 1877, and the testimony of Mr. Adger annexed.)

By "An Act to settle definitely the periods at which returns shall be made of phosphate rock and phosphatic deposits dug and mined in the beds of the navigable streams and waters of the State of South Carolina, and the royalty shall be paid thereon, and also to fix the terms on which this Act may be accepted by the parties named therein," approved March 28, 1876, (XVI S. L., 198,) it is recited as follows:

"Whereas differences have arisen between the Coosaw Mining Company and the Comptroller General as to the times and manner in which the said company shall make their returns of the number of tons of phosphate rocks and phosphatic deposits dug, mined and removed by them from the beds of the navigable streams and waters of the State, and also as to the times when the royalty thereon shall be paid; therefore, for remedy thereof, *Be it enacted*, &c., That the said Coosaw Mining Company, and all other companies and persons engaged in digging, mining and removing phosphate rocks and phosphatic deposits from the beds of the navigable streams and waters of the State, shall be, and they are hereby, required, from and after the passage of this Act, to make to the Comptroller General true and faithful returns of the number of tons of phosphate rock and phosphatic deposits they have so dug, mined and removed *and shipped, or otherwise sent to market*, at the end of every month; and shall punctually pay to the State Treasurer the royalty *already provided by law to be paid thereon* at the end of every quarter or three months, the first quarter to commence on the first day of March of the present year."

By "An Act to protect the rights and interests of the State in the phosphate rocks and phosphatic deposits in the navigable streams and waters of the State," approved March 22, 1878, (XVI S. L., 615,) certain companies were incorporated for the purpose of digging, mining and removing phosphate rocks and phosphatic deposits from the beds of the navigable streams and waters therein mentioned; and the right to dig, mine and remove the same for the full term of ten years is given to said companies, upon the terms and conditions, and from the territory assigned the said companies respectively, in said Act.

Section 6 provides that each and every of the said companies, when organized, shall be required to make to the Comptroller General true and lawful returns of the number of tons of the phosphate rock and phosphatic deposits they may have dug, mined and removed and shipped, or otherwise sent to market, at the end of every month, and shall punctually pay to the State Treasurer the royalty *provided by law to be paid thereon, to wit: One dollar upon each and every ton which has not been steamed or kiln dried, or one dollar and ten cents upon every ton which has been steamed or kiln dried*, at the end of every quarter or three months." As a condition precedent to the right to the right to dig, mine and remove the said rocks and deposits, each company was required to enter into bond, with security in the penal sum of one-half of its capital, not to exceed $50,000, conditioned for the payment of the said royalty *in accordance with the* Act of Assembly entitled "An Act to settle definitely the periods at which returns shall be made, &c., approved 28 March, 1876."

By "An Act to establish a system of general right to dig and mine phosphate rock and phosphatic deposits in the navigable streams and waters of the State, and to provide a mode of ascertaining and of protecting the interest of the State therein," approved December 24, 1878, (XVI S. L., 780,) the Comptroller General was authorized to issue to all citizens of the State and bodies corporate applying for the same licenses granting a general right to dig and mine phosphate rock and phosphatic deposits from the rivers and streams in the State therein enumerated, not then occupied by companies having exclusive rights therein.

Those to whom such licenses shall be issued are required to make returns of the phosphate rock and phosphatic deposits they may have dug, mined, removed and shipped, or otherwise sent to market, at the end of every month, and to pay to the State Treasurer at the end of every quarter "the royalty provided by law to be paid thereon, to wit: one dollar upon each and every ton which has not been steamed or kiln dried, or one dollar and ten cents on every ton which has been steamed or kiln dried."

By Section 10, the Governor is authorized to appoint a special agent, whose duty it shall be to superintend and inspect all navigable waters of the State containing phosphates, and the work of all persons or corporations mining or gathering such rocks under license or otherwise, and to protect the interests of the State, not only by preventing unlicensed persons from mining from such streams, "but also in securing the prompt and accurate returns of the quantity dug, mined or removed, and the payment of all royalty thereon."

The Comptroller General (Hon. Johnson Hagood) on the 10th of November, 1879, reported to the Legislature as follows:

"ROYALTY.—The Oak Point Mines, the South Carolina Phosphate (limited) and the Coosaw Mining Company prepare their rock for market by steaming or kiln-drying, and their returns are made upon the weights after undergoing this process. The Oak Point Mines Company pays, under Section 6 of the Act of 1878, a royalty of $1.10 upon such weights. The other two companies are not amenable to the provisions of said Act, but pay their royalty under the grant to the Marine and River Company. (A. A., 1870, No. 275.)

"This Act provides a royalty of one dollar per ton, but does not say whether it shall be a ton of crude or dried rock. They have assumed and continue to pay upon the weight after drying. The present Comptroller has not seen fit to disturb the practice in this matter he found prevailing. It is a discrimination, however, of some consequence in favor of these two companies. All other companies and individuals now engaged in phosphate mining in the domain of the State, except the above mentioned, handle only crude rock and pay a royalty of one dollar thereon."

By "An Act to regulate the royalty on phosphate rocks and phosphatic deposits in the navigable streams in this State," approved February 9, 1882, (XVII S. L., 104,) it is enacted:

"SECTION 1. That on and after the passage of this Act, the royalty payable to the State on all phosphate rocks and phosphatic deposits *dug or mined* from the navigable streams of this State by any person, company or corporation, by virtue of any license, law, charter or other authority from this State, shall be estimated only upon the crude rock, and not upon the rock after it has been steamed or dried.

"SEC. 2. That all Acts and parts of Acts inconsistent and conflicting with the provisions of this Act be, and the same are hereby, repealed."

To this Act Mr. McCrady does not allude in his letter.

"The Coosaw Mining Company" is a "company" by which "phosphate rocks and phosphatic deposits" are "dug or mined" "from the navigable streams of this State" "by virtue of" a "license, law, charter or other authority from this State," and is, therefore, embraced in the provisions of this Act, and "the royalty payable to the State on all phosphate rocks and phosphatic deposits dug or mined from the navigable streams of this State" by said company should be estimated only upon the crude rock, and not upon rock "after it has been steamed or dried."

Mr. McCrady says the Coosaw Mining Company from 1870 "have continued to pay one dollar, whether crude or dried, upon every ton shipped or sent to market."

The royalty upon phosphate rock taken from the navigable waters of the State, imposed by the Act of 1870, was certainly to be estimated upon "crude rock," because it was required to be paid upon every ton "dug, mined and removed" before it could be subjected to any other process. And, in fact, the practice of drying or steaming the phosphate rock so mined was not introduced until some time after the Act of 1870. The Act of 1876, as appears by the title, was only to settle definitely the *periods* at which returns of rock mined and the payment of royalty were to be made, and did not change the royalty already provided. It was passed, as appears by the recital, because of differences which had arisen between the Coosaw Company and the Comptroller General as to the times and manner in which the said company shall make their returns and pay royalty, and for remedy thereof; and provided that the Coosaw, and all other companies and persons engaged in mining phosphate rock from the navigable waters of the State, should thereafter be required to make to the Comptroller General returns of rock dug, mined and removed and shipped, or otherwise sent to market, at the end of every month, and pay to the State Treasurer at the end of every three months "the royalty *already provided by law* to be paid thereon." The only royalty "already provided by law" was that fixed by the Act of 1870, which, as already pointed out, must necessarily have been estimated upon the "crude" rock. This Act changed the time when returns should be made from the time when mined to the time when shipped or otherwise sent to market, but left the royalty the same—one dollar per ton upon crude rock.

After the passage of the Act of 1870, some of those mining under its provisions steamed or dried the rock after it had been mined and removed, and before it was shipped or otherwise sent to market. This treatment of the rock, by eliminating moisture, greatly reduces the bulk, changes the physical, and perhaps chemical, condition of the rock, and enhances its market value.

"Exclusive Rights" Act of 22d March, 1878, and the "General Rights" Act of 24th December, 1878, each required returns to be made, and royalty to be paid, "in accordance with the Act of 1876;" and in fixing the royalty used the same words as in the Act of 1876, "the royalty provided by law to be paid thereon," and, I think, declared and defined the meaning of these words by the words added to them in both Acts, to wit: "One dollar upon each and every ton which has not been steamed or kiln driod, or one dollar and ten cents upon every ton which has been steamed or kiln dried."

The several Acts recited, being *in pari materia*, should be construed together; and, so construed, establish, in my opinion, that the royalty upon phosphate rock mined from the navigable waters of the State was originally fixed upon crude rock; that this is not affected by the changes made as to the time of making the returns, or by the treatment of the rock between the time of digging and the time of shipping or sending to market; and that for the purpose of estimating the royalty to be paid to the State, the difference between crude and dried rock shall be *ten per cent.* Where the returns are made of the rock after it has been dried, the royalty to be paid to the State shall nevertheless be estimated upon the crude rock, and this will be done by estimating a ton of rock after it has been steamed or dried as equal to one and one-tenths of a ton of crude rock, or by payment of a royalty of one dollar and ten cents upon each ton steamed or dried.

But the Coosaw Company and the South Carolina Phosphate Company, limited, having assumed the right to pay a royalty of one dollar per ton upon the rock after it had been dried, and this fact having been reported by the Comptroller General to the Legislature in 1879, the Act of 9th February, 1882, was passed "regulating the royalty on phosphate rock in the navigable streams in the State," and declaring that the royalty payable to the State on all phosphate rock dug or mined by any persons, company or corporation, by virtue of any license, law, charter or other authority from the State, shall be estimated only upon the crude rock, and not upon the rock after it has been steamed or dried.

The duty imposed by the 10th Section of the Act of 24th December, 1878, upon the special agent appointed by the Governor "to secure the prompt and accurate return of the phosphate rock dug and mined from the navigable waters of the State, and the payment of the royalty thereon," has been devolved upon the Commissioner and Board of Agriculture, who now "are exclusively charged with the protection of the rights and interests of the State in the phosphate rocks and phosphatic deposits in the navigable streams and in the marshes thereof, except that the Comptroller General shall continue to receive the reports of rock mined and dug, and of royalty paid into the State Treasury." (Gen. Stat., Sec. 586.)

The Acts herein recited, I consider, contain the "provisions of the law which makes the Coosaw Company liable to the payment" of the royalty of one dollar per ton upon crude rock, and of one dollar and ten cents upon rock after it has been dried, and the Commissioner and Board of Agriculture are the "officer and Board to whom the right and authority is given by law to claim such royalty from them." I think the provisions of the Act of 9th February, 1882, are in harmony and consistent with the previous Acts regulating the royalty upon phosphate rock to be paid to the State; but if the Acts of 1870, 1876, or any other Acts or parts of Acts, except or protect the Coosaw Mining Company from the provisions and operation of the Act of 1882, then such Acts or parts of Acts are "inconsistent and conflicting with" the said Act of 1882, and are expressly repealed by it.

The question whether the Legislature had the authority and right to repeal such Acts or parts of Acts as the Coosaw Company may claim except or protect it from the provisions of the Act of 1882, is not within the province of the Department of Agriculture to decide; such questions can be decided only by the Courts of the State upon cases made.

I am, therefore, of opinion, that the Coosaw Mining Company is subject to the provisions of the Act of 9th February, 1882, and that it is the duty of the Commissioner and Board of Agriculture to make demand upon the said company to comply with said Act, and upon the refusal or neglect of the said company to comply, to test the right of the State by instituting a suit for the recovery of the difference between the amount of the royalty paid by the said company to the State, estimated as they admit that they have estimated it, (that is, upon every ton of rock shipped or sent to market, whether crude or dried,) and the amount of royalty payable to the State estimated according to the provisions of the Act of 1882, "only upon the crude rock, and not upon rock after it has been steamed or dried."

Respectfully,
CH. RICHARDSON MILES,
Attorney General.

APRIL, 1883.

CHARLESTON, S. C., February 27th, 1883.

Hon. CHAS. RICHARDSON MILES, *Attorney General of South Carolina.*

DEAR SIR: Your favor of 15th inst. was duly received. I must ask your indulgence for a somewhat tardy reply, occasioned partly by my own absence from the city and partly because I desired, naturally, to consult the counsel of the company on the subject matter of your letter before sending you an answer.

I am just in receipt of a communication from Mr. Edward McCrady, our senior counsel, in response to my inquiry, and beg to enclose you a copy of the same, as setting out briefly the position of the Coosaw Company.

Please accept my acknowledgments for the courtesy extended to us by your letter, and believe me,

Yours very respectfully,

(Signed) ROBERT ADGER,

Chief Manager Coosaw Mining Company.

ROBERT ADGER, ESQ., *Chief Manager of Coosaw Mining Company.*

DEAR SIR: We have carefully read and fully considered the letter of the Attorney General, submitted to us, reciting a part or the whole of a request made of him by the Department of Agriculture for his official opinion, whether, "under any charter, grant, permit or other agreement with or authority from the State, the Coosaw Mining Company is exempt from the provisions of the law which requires companies mining phosphate rock or phosphatic deposits to pay to the State a royalty of one dollar per ton on crude rock and one dollar and ten cents per ton on steamed or kiln dried rock," and requesting to inform him whether your company claims any such exemption, and, if so, upon what grounds such claim is based. We advise you to answer, that the company does not claim any *special exemption* from the provisions of the law, because it maintains that there is no such provision of the law to make the company liable to such payment that you know of, and there is no right or authority given by law to any Board or officer to claim such royalty from them. That the company has conducted its business from the first grant in 1870 up to the present time, and paid the royalty imposed upon it in the same manner, except as changed by A. A. 1876, regularly, and they know of no provision of the law making the company liable otherwise than as heretofore, except as to the change in the days of payment, made by the Acts of 1876 and 1878. The Comptroller General of the State (Dunn) did in the year 1876 give notice to the company that he should require it to pay one dollar per ton on the crude rock, but this, under the opinion of the solicitor of the company, which was printed at the time, was refused, and led to the Act of 1876, adding to the former words, "dug, mined and removed," the words "shipped or otherwise sent to market," so as to prevent such a claim in future. And we have continued to pay one dollar per ton, whether crude or dried, upon every ton shipped or sent to market; and this we consider is all we are bound to pay under the provisions of the law. The Act of 1878, requiring the companies therein chartered to pay the one dollar per ton on crude rock and one dollar ten cents on dried rock, did not apply to any other company, although it recognized then the grant to the Coosaw Company of the exclusive right to the Coosaw River; and the Act of 1878, authorizing general rights to be granted, was confined in its provisions expressly to such general rights. The two last mentioned Acts of 1878 are the only Acts in which a royalty of one dollar and ten cents is provided for, and, as has been said before, neither of them is applicable to the Coosaw Company.

All of which is respectfully submitted as the opinion of all the counsel of the Coosaw Mining Company after full consultation, and in behalf of all of whom this answer is signed by the senior counsel.

(Signed) EDWARD McCRADY.

FEBRUARY 26, 1883.

After hearing the report of the Attorney General in the matter of the Coosaw Company, at a meeting held April 11th, 1883, the Board of Agriculture adopted the following resolution:

Resolved, That the Attorney General be requested to take such steps as may be necessary to secure the payment of royalty due the State by the Coosaw Phosphate Company.

The Attorney General was notified of this action of the Board, and the following communications explain the final result of the matter:

EXECUTIVE DEPARTMENT,
OFFICE OF THE ATTORNEY GENERAL,
CHARLESTON, S. C., 14th June, 1883.

To the Commissioner and Board of Agriculture, Columbia, S. C.

GENTLEMEN: On receipt of the Resolution adopted by the Board on the 11th of April last, requesting me to take such steps as may be necessary to secure the payment of royalty due the State by the Coosaw Mining Company, I addressed a communication to Mr. Robert Adger, Chief Manager of that company, and have received a reply.

I enclose copies of the correspondence. Mr. Adger, as you will see by his letter, in behalf of the Coosaw Mining Company, agrees, as no question has been made as to the contract with the State claimed by the Coosaw Company, for the sake of peace and to avoid conflict of opinion with the State, and not admitting that they have in any respect failed in fulfilling the conditions imposed upon them by law, to waive any discussion, and hereafter to make their returns and pay the royalty to the State estimated upon crude rock, and not upon the rock after it has been steamed or dried.

With regard to the rock mined and shipped by the Coosaw Mining Company since the passage of the Act of 9th February, 1882, and upon which the royalty, estimated upon the rock after it had been steamed or dried, has beeen already paid to the State, Mr. Adger offers to pay into the State Treasury the difference between the amount of royalty already paid and the royalty which will be payable estimated upon the crude rock. This difference to be ascertained by the most careful and accurate experiments conducted under his direction. Mr. Adger giving such certificate as to their correctness as may be required.

While the royalty required to be paid to the State by the grantees under the Act of 1870 was, according to my opinion, to be estimated upon crude rock, the Coosaw Mining Company has always estimated the royalty it paid to the State upon dried rock.

This was, however, done under a claim of right, based upon the construction of the Act of 1876, which required the royalty to be paid upon every ton of rock only when shipped or sent to market, the rock mined by that company being always dried before shipment.

The fact that the Coosaw Company so estimated the royalty paid to the State was not only apparent from the returns made to the Comptroller General, which were annually reported to the Legislature and published, but was expressly reported to the Legislature by the Comptroller General.

Yet the Legislature, in the Act to regulate royalty, passed 9th February, 1882, declared that the royalty payable to the State by all who mined from navigable waters under the authority of the State shall be estimated only upon the crude rock and not upon the rock after it has been steamed or dried, "*on and after the passage of said Act.*"

Under these circumstances, I think that the right of the State to recover from the Coosaw Company *now* the difference between the royalty already paid by it, estimated upon dried rock, and upon crude rock from 1870 to 1882 is so doubtful, to say the least, that I cannot advise that a suit shall be instituted to recover it. Upon the rock mined and shipped by it since the passage of the Act of 9th February, 1882, the Coosaw Company offers to pay the difference between the royalty estimated upon dried rock, which has already been paid, and the amount of royalty which is payable estimated upon crude rock.

By the Acts of March and December, 1878, mentioned in my opinion to the Board, the option was given to the corporations thereby chartered to which exclusive rights to mine in specified territory of the State was granted, and to the individuals who received licenses to mine in territory not specially granted, to pay royalty either upon crude rock or upon rock after it was dried, and the difference was fixed at $1 per ton on rock before it was dried, and $1.10 per ton on rock after it was dried, or ten per cent. These Acts did not apply in terms to the Coosaw Mining Company. It seems to me, therefore, that since the passage of the Act of 9th of February, 1882, if for any reason the royalty paid to the State by those mining under the authority of the State has been estimated upon dried instead of upon crude rock, the parties must pay the *actual* difference between the royalty estimated on dried rock and the royalty estimated upon crude rock, whether that difference be *less or more* than *ten* per cent.

This actual difference Mr. Robert Adger, Chief Manager of the Coosaw Mining Company, proposes to ascertain by careful and accurate experiments conducted under his direction, their correctness to be certified to by him in such manner as shall be required.

The royalty which the Coosaw Mining Company will hereafter pay, estimated upon crude rock, will rest upon the certificate of the Chief Manager, and it is for the Board to decide whether the method of determining the additional amount which is now to be paid into the State Treasury by that company, which Mr. Adger represents, is not sufficient, without the expense and delay which will necessarily be incurred if any other method of determining the amount is resorted to.

I am, therefore, of the opinion that the interest of the State will be best subserved by acceding to the proposals made by Mr. Adger in behalf of the Coosaw Mining Company, and I ask the direction of the Board as to the reply which I shall make to his communication.

In view of the character of the questions to be considered, the large amount involved, and the number and distinguished ability of the counsel representing the Coosaw Company, I have associated Mr. Samuel Lord, Jr., of Charleston, with me as counsel for the State in this matter, and he concurs with me in the opinion and advises what I have given to the Board. I enclose with this a letter from him on the subject.

Respectfully,
CH. RICHARDSON MILES,
Attorney General.

The following is the letter from Mr. Samuel Lord, Jr., referred to in the foregoing communication from the Attorney General:

CHARLESTON, S. C., June 13th, 1883.

Hon. C. R. MILES, *Attorney General South Carolina.*

DEAR SIR: I proceed at your request to reduce to writing the views I have heretofore verbally expressed on the question pending between the Board of Agriculture and the Coosaw Mining Company, as to the mode in which the royalty on the kiln dried rock mined by the company should be estimated, so that it shall pay a royalty of one dollar per ton on the crude rock.

The company derives its rights from the grant made to George W. Williams and others by the Act of 1870. That Act provides that the grantees shall pay to the State one dollar per ton for every ton of phosphate rock mined. It does not say whether this royalty is to be estimated on crude or dried rock; but I am of opinion, for the reasons stated by you in the opinion which you have given to the Board, that the proper construction of the Act requires the royalty to be estimated on the rock before it has been artificially dried. Let us now examine the subsequent legislation. By the Act of March 22d, 1878, the Legislature incorporated certain companies and granted to them exclusive rights in certain territories; and required "said companies" "to pay one dollar on each and every ton of rock mined which had not been steam or kiln dried, and one dollar and ten cents upon every ton which had been steam or kiln dried."

It will be observed that by the terms of this Act its operation is expressly limited to the companies therein named, to which it gave the option to pay either on crude or kiln dried rock, at the rate fixed by the Act, to wit: one dollar on crude and one dollar and ten cents on kiln dried rock.

By the Act of December, 1878, the Legislature authorized and required the Comptroller General to issue to all persons applying for the same licenses granting a general right to mine in certain specified rivers: and provided that "every person to whom a license was granted under that Act should pay one dollar upon each and every ton which had not been steamed or kiln dried, or one dollar and ten cents on every ton which has been steamed or kiln dried." Neither of these Acts applied to the Coosaw Company.

By the Act of February, 1882, the Legislature provided that "on and after the passage of this Act the royalty payable to the State by any person or company or corporation mining by virtue of any authority from the State shall be estimated *only* upon the crude rock, and not upon rock after it has been steamed or kiln dried."

The language of this Act clearly embraces the Coosaw Company. It is prospective. Its object and effect, in my opinion, were to put all companies and persons mining under the authority of the State upon an equal footing and to take away the privileges, granted to certain companies by the previous legislation, to pay at their option one dollar per ton on all rock which had not been kiln dried or one dollar and ten cents per ton on all rock which had been kiln dried.

But in doing this the Legislature at the same time removed the arbitrary estimate of ten cents per ton on the difference between crude rock and dried rock. If we were at liberty to speculate as to the motives which influenced the lawgivers, we might conjecture that they wished to avoid the question which might be raised as to the right of the State to fix arbitrarily the difference between the dried rock and the crude rock, as to those companies which had acquired rights under the Act of 1870 and other Acts passed prior to 1878. Be that as it may, this arbitrary rule no longer exists, and if suit is now brought to compel the Coosaw Company to pay the difference between the royalty estimated on kiln dried rock and the royalty estimated on crude rock, the Court would be obliged to leave it to a jury to decide, as a question of fact, on all the evidence before them, what was the true proportion between these two classes of rock; and the company would be compelled to pay this difference, whether it amounted to more or less than ten cents per ton. It seems to me that this question can be settled more satisfactorily by a series of experiments than by the proverbially uncertain verdict of a jury.

Yours, very respectfully,

SAMUEL LORD, JR.

EXECUTIVE DEPARTMENT,
OFFICE OF ATTORNEY GENERAL,
CHARLESTON, S. C., April 26th, 1883.

ROBERT ADGER, ESQ., *Chief Manager Coosaw Mining Company.*

DEAR SIR: In response to the inquiry of the State Board of Agriculture, (of which I informed you,) I gave an opinion that the Coosaw Mining Company is subject to the provisions of the "Act to regulate the royalty on phosphate rock and phosphatic deposits in the navigable streams of the State," approved February 9, 1882; which declares that the royalty payable to the State on phosphate rock dug or mined from the navigable streams of the State by any company by virtue of any license or authority from the State shall be estimated only upon the crude rock, and not upon the rock after it has been steamed or dried; and that the Coosaw Company having stated that they "have from the first grant in 1870 up to the present time continued to pay one dollar per ton, whether crude or dried, upon every ton shipped or sent to market," it is the duty of the Board of Agriculture to make demand upon the said company to comply with the said Act, and upon their refusal or neglect to comply, to test the right of the State by instituting a suit for the recovery of the difference between the amount of royalty paid by said company to the State, estimated as they admit they have estimated it, and the amount of royalty payable to the State estimated, according to the provisions of the Act of 9th February, 1882, upon crude rock, and not upon rock after it has been steamed or dried. I enclose you a copy of this opinion.

The Board of Agriculture upon receiving this opinion adopted a resolution requesting the Attorney General to take such steps as may be necessary to secure the payment of royalty due the State by the Coosaw Mining Company.

I now, therefore, in behalf of the Department of Agriculture, and by their instructions, demand that your company comply with the provisions of the Act of 9th February, 1882, and pay to the State the difference paid by your company to the State, estimated as you have heretofore estimated it, (that is upon every ton of rock shipped or sent to market, whether crude or dried,) and the amount of the royalty payable to the State estimated, according to the provisions of the Act of 9th February, 1882, only upon crude rock, and not upon rock after it has been steamed or dried. Your early reply is requested.

Respectfully,
CHARLES RICHARDSON MILES,
Attorney General.

CHARLESTON, S. C., May 14, 1883.

Hon. C. R. MILES, *Attorney General.*

DEAR SIR: I have the honor of acknowledging the receipt of 20th April ult., accompanied by a copy of your opinion to the Department of Agriculture, with reference to the mode in which the phosphate royalty should be estimated, that is to say, upon the crude rock and not on the rock after it has been steamed or dried. I am advised that the questions submitted to you by the Board of Agriculture do not involve any questions as to the validity of the contract between the State and the Coosaw Mining Company by the Act of 1870 and 1876, and that, therefore, we can consider the proposition maintained by you without fear of committing ourselves on this, to us, vital question, which, of course, could not be the subject of negotiation. I am further advised that, by your construction, the royalty payable on a ton of phosphate rock must be estimated on the crude rock. Your opinion has been examined by me with the high consideration it deserves.

Neither the Coosaw Mining Company, nor do I, desire any conflict of opinion with the State, still less do we covet litigation with the State. So, whilst I am not able to say that I concur entirely with the views you present, I am willing to consider with you the construction of the words "ton of phosphate rock," of our Acts, and to meet you on your own ground as I understand it.

The Act of 1882 having declared that on and after its passage the royalty should be estimated on a ton of crude rock, and not on the rock after it has been steamed or dried, and your opinion being that the

Coosaw Mining Company should estimate the royalty paid by it to the State upon the crude rock, and not upon the rock after it has been steamed or dried, for the sake of peace I will consent to waive any discussion of this point, and for the future to regulate our returns in accordance therewith.

With regard to the rock dug, mined and shipped since the passage of this Act up to the present time, I am willing to pay into the State Treasury the difference between the royalty already paid and the royalty estimated as on the crude rock. The estimate will be made upon the most careful and accurate experiments conducted under my direction, and I will give such certificate as to their correctness as may be desired.

I am prepared to take the course thus indicated, both as to those past and to our future returns, governed solely by a desire for a peaceful solution of the matter in controversy, in no sense admitting that there is any question of the validity of our contracts with the State, or that we have in any respect failed in fulfilling all the conditions imposed on us by law. Thanking you for the courtesy you have shown me, I remain,

Very respectfully,

ROBERT ADGER,

Chief Manager of the Coosaw Mining Company.

After the foregoing papers were submitted to the Board by the Attorney General, the following preamble and resolution were adopted:

"The Coosaw Mining Company having, upon the requirement of the Board of Agriculture, through the Attorney General, agreed to comply with the provisions of 9th February, 1882, and to pay royalty to the State estimated only upon crude rock, and not upon rock after it has been steamed or dried,

"*Resolved,* That the settlement of the claim of the State against the Coosaw Mining Company for royalty, reported and recommended by the Attorney General, is approved, and the Attorney General is required to carry the same into effect."

The settlement agreed upon between the Attorney General and the Coosaw Company has been made and the amount paid into the State Treasury.

As required by law, the Board and Commissioner, with the Special Assistant, made the

ANNUAL INSPECTION OF THE PHOSPHATE TERRITORY.

The steamer Louisa was chartered for the purpose and left Charleston on Wednesday morning, the 25th of April.

We first visited the territory of the Marine and River Phosphate Company, which covers all that part of Stono River from Wappoo Cut to the sea, with its tributaries. We made an inspection of the plants of this company, which consisted of large dredges with improved patented grapplers working in connection with their large sucking machine.

During our visit experiments were being made with these machines, so we did not have the opportunity of seeing them work to our satisfaction. This company has expended large amounts in trying to solve the question of mining in deep water. So far they have been unsuccessful. After making the inspection of their territory, which included the Kiowah, we passed on to that part of Stono River which is worked under general rights, and in which we found forty flats at work under the license granted to Mr. David Roberts. From this point the steamer passed over Church Flats to Wadmalaw, Edisto and Dawhaw Rivers, and through Mosquito Inlet to Ashepoo River, all of which is thrown open to those holding general rights licenses. We found no one at work in these rivers. We then went from Ashepoo on through St. Helena Sound to Bull River to the works of the Oak Point Company, located on South Wimbee Creek. This company had at work one large dredge and washer afloat and sixty flats; they have on land a large washer and drying sheds.

From this point we proceeded to the territory of the Coosaw Company, first visiting their plant in the river. We found three large and powerful dredges, each of which had a wash boat attached to wash and crush the rock before being sent to the dry sheds ashore. We also found 26 flats hand-picking rock. We then visited the works of this company on land, where we found the most complete arrangements for conducting all business connected with river mining. From this point we went to Beaufort and inspected the territory worked in that neighborhood. We found the Sea Island Chemical Company at work in Johnson River with their new dredge, which seemed to be doing good work. They were building a very much larger and more powerful dredge of the same pattern, which has since been put to work with great success. On land this company has a large washer and extensive dry sheds.

In Beaufort River we found 25 flats working under the general rights granted to Messrs. Hume, Brothers & Company. These gentlemen have erected on the land extensive works for manufacturing fertilizers from river rock. We also found in Beaufort River 15 flats worked by Mr. James M. Crofut.

We returned to Charleston on Saturday, the 28th, and on Monday, the 30th, inspected Ashley River, in which we found 30 flats worked by Mr. D. W. Ebaugh under general rights.

We expected to visit Wando River on Tuesday, but were prevented by stormy weather, which lasted for several days. This was done later by the Special Assistants, who reported the Palmetto Company at work with 36 flats.

LICENSES REVOKED.

At a meeting of the Board of Agriculture held April 11, 1883, the general rights licenses granted to C. O. Campbell and W. M. Hale were revoked on account of non-payment of royalty.

THE REPORT OF SPECIAL ASSISTANT.

Is herewith submitted:

Department of Agriculture,
State of South Carolina,
Office of Special Assistant,
Columbia, S. C., November 1st, 1883.

Hon. A. P. Butler, *Commissioner of Agriculture, Columbia, S. C.*

Dear Sir: I have the honor to submit the following as the report of the duties performed by me as Special Assistant of the Department during the current year ending 31st October, 1883:

Condition of the Trade.

The market for rock since my last report has been quiet, the demand not being very great. Within the last few months, however, the demand has slightly increased, and this, coupled with the fact that the amount of rock on hand has been somewhat reduced, has tended to stiffen prices and to make producers firmer in holding.

The prospect for the present is that a fair demand at moderate prices will continue. The short crops throughout the country will in all probability somewhat reduce the purchases by parties heretofore using fertilizers. On the other hand, the area of country using fertilizers with Carolina phosphate rock as a basis is gradually extending as the rock becomes each year more and more widely known.

This applies to the European markets, but more especially to those in the United States. The use of phosphate rock is increasing in the West, and with increased facilities for transportation the demand will become even larger. To sum up, the prospect is for a quiet market with a moderate firm demand.

Operations for the Past Year.

The total number of tons of rock sold and removed during the fiscal year ending 31 August, 1883, is...	129,318$\frac{310}{2240}$
As against for last year is....................................	140,772$\frac{64}{2240}$
A decrease of..	10,453$\frac{1994}{2240}$
The total amount of royalty received by the State from the marine companies for the fiscal year ending 31 August, 1883, is..................	$125,793 41
As against for last fiscal year................................	138,254 14
A decrease of........	12,460 73

Of this amount companies working under exclusive rights have paid $100,468.17, and those working under general rights have paid $25,325.24. The detailed amounts are as follows:

Exclusive Rights Companies.

Coosaw Mining Company...........................	$88,787 47	
Oak Point Mines Company........................	692 30	
South Carolina Phosphate Co. [Limited.].......	4,631 70	
Palmetto Phosphate Company.....................	600 00	
Farmers' Phosphate Company..............	4,136 70	
Marine and River Phosphate Company.........	1,620 00	$100,468 17

General Rights Companies.

Sea Island Chemical Company...	$11,936 65	
David Roberts..	4,593 45	
C. O. Campbell..	562 55	
Joseph W. Seabrook..................	872 00	
George A. Trenholm & Son	121 09	
W. T. Seward...	2,424 00	
J. M. Crofut..	405 00	
George T. Davis.......................................	806 00	
J. DeB. & J. Seabrook..............................	338 00	
Willis Wilkinson................	40 00	
George Gage........	2,230 00	
D W. Ebaugh...	648 50	
James Hume, Bros. & Co. [Limited]...	183 00	
Joseph G. Taylor......................................	165 00	$ 25,325 24
Total royalty paid........................		$125,793 41

Royalty is still due and uncollected upon rock mined and shipped during the past year by

The Marine and River Phosphate Company	$ 5,343 00
W. M. Hale	21 00
Royalty due	$ 5,364 00
Add royalty paid	125,793 41
Total royalty for year	$131,157 41

Of the rock this year sent to market, there has been shipped to

Foreign ports	106,369 tons.
Domestic ports	$22,949\frac{310}{2240}$ tons.
Total shipped	$129,318\frac{310}{2240}$ tons.

Suits for Royalty Due.

Under the direction of the Commissioner of Agriculture, as advised by the Attorney General, the claims of the State for unpaid royalty against C. O. Campbell and W. M. Hale have been placed in the hands of W. St. Julian Jervey, Esq., Solicitor for the First Circuit, for collection.

Suit has been instituted by him in the name of the State on the bonds in both cases. These cases are now on the docket in the Court of Common Pleas for Charleston County, ready for trial, with a fair prospect of collection.

Marine and River Company.

There is due by this company for royalty to the State as above stated $5,343, which is amply secured by the personal bond of five gentlemen of unquestioned solvency and a mortgage to the State of the entire plant and property of the company. This royalty has not been paid because of peculiar circumstances. A very large part of their territory is such that no other company could utilize it; and if the machinery of the Marine and River Company is unable to develop it, no other machinery that we know of could possibly do so. The problem of breaking and raising rock from deep water has involved a very much larger outlay of money and time than it was supposed would be necessary, and the officers and stockholders have spared neither labor nor expense in their efforts to solve the problem. Indeed, about the 1st September last, operations of the company were suspended by the then Board of Directors, because they did not feel warranted in endeavoring to raise any more money in this effort. A new Board of Directors has been elected and an earnest effort is being made now to reorganize this company by the introduction of new capital and machinery, and, it is believed, with great hope of success. The rock produced, and upon which a part of this royalty is due, has not been sold, owing mainly to the fact that, for the want of proper machinery to prepare it, it has not been put in marketable condition. The greater part of the rock mined is upon the company's land, to be prepared for market when the proper appliances for such preparation are obtained. As the royalty is secured to the State by the said personal bond, by the mortgage of the company's property and by the rock itself, it seems to me a case where the State might properly consider whether further indulgence for its payment should not be extended. This especially in view of the fact that the company has made no dividends and all the money realized by its mining operations has been expended in conducting and perfecting experiments in which the State has a vital interest.

The success of this company will develop a large extent of territory belonging to the State now producing no income to her. The failure of its experiments will probably deter for years any further efforts in this direction.

New Companies.

Since my last report a general rights license has been issued to James Hume Bros. & Co, (limited). This is a Scotch concern, who, in addition to dredging and mining rock, propose also to engage in the business of manufacturing fertilizers.

For this purpose they have erected large works on Beaufort River, a few miles below the town of Beaufort. They have introduced a new element into the business, to wit: the manufacture of sulphuric acid from iron pyrites. This company being the first to adopt that method, the result will be looked forward to with interest.

Suits Against Trespassers.

The suits against the Pacific Guano Company for alleged trespass in South Wimbee, Palmer's and Horse Island and other creeks, and against W. B. Davis and C. C. Pinckney, Jr., for the marshes around Morgan Island, were heard before His Honor Judge Wallace at Beaufort during the October Term of the Court of Common Pleas there. The testimony in both cases had been taken during the Summer and was in print before the Court. The case against the Pacific Company was argued fully by Messrs. A. T. Smythe, W. J. Verdier and A. M. Lee, Jr., for the State, and by Messrs. C. H. Simonton, Wm. Elliott and Robert Chisolm for the company.

The Morgan Island cases were argued by Messrs. Smythe and Lee for the State and Messrs. Isaac Hayne and Wm. Elliott for the defendants.

If the cases should be decided in favor of the State, the amount of the recovery depends upon the following matters:

In the Pacific case the account of rock taken from the creeks as stated by the defendants, after making allowance for fall-short in washing, &c., is 28,644 tons. A very large proportion of this they claim to have been taken from above low water mark,—in other words from territory not in dispute—and that this can be ascertained. They claim, also, that if liable at all, it is only for $1 per ton, that being the royalty fixed by the State. The State, however, claims that the company is bound by the amount actually credited on their books, without any allowance, as taken from these creeks, to wit: the sum of 44,616 tons. That as they have mixed what came from the territories claimed by the State with other rock, and there is no means now of making any accurate division, they are bound under the rules of law to suffer the loss of the whole rock, and that the measure of damages is not limited to $1 per ton, because the State has drawn a line, by the Act of 9th June, 1877, between royalty payable by those working under license and damages for those taking without license. And that the true measure, if the Court holds the creeks to be the property of the State and that the taking was their inadvertence or mistake, was the value of the rock less the cost of production. But if the taking was found to be a willful trespass, then the measure of damage was the value of the rock without any deduction. If, therefore, the State should be held to be the owner of the soil under these creeks, the amount of the recovery by the State in this case will depend upon the decision of these questions. In the Morgan Island cases the same questions as to the amount of damages arise, but, as the quantity alleged to be taken is comparatively small, the main question is as to the right to the marsh itself.

Royalty on Crude Rock.

In reference to the question as to estimating royalty on crude rock and not on rock after it has been dried as required under the Act of February, 1882, I expressed fully my views as to the practical working of this Act in my last report. Since then the matter was referred by the Board of Agriculture to the Attorney General, who held that the Act must be enforced, and that the difference between the dried and crude rock must be taken into account. He held also that in the grants to the Coosaw Company, and under which they operate, the word ton of rock, upon which they were required to pay a royalty, was indefinite, and claimed that it meant crude and not dried rock. The Coosaw Company upon demand agreed to confer with the Attorney

General as to the proper meaning of the word ton in their contract, provided that it should be understood that this conference in no way involved the question of the right of the State to alter or control such contract or its validity. As this question had not been referred to the Attorney General, it did not arise in the conference that ensued. As a result, it was agreed that the company should pay on crude rock the difference between that and the hot air dried rock, to be ascertained by actual experiment, and this payment to be from February, 1882; this the company has done, paying in the amount of $4,353.01, and is now making returns on the basis of crude rock. Thus a matter which at one time threatened litigation which must have been serious both to the State and the company has, by the wisdom and good management of those having it in charge, resulted in a fair and satisfactory settlement, in which the rights of the State are fully protected.

All of which is respectfully submitted.

E. L. ROCHE,
Special Assistant.

IMMIGRATION.

At the last session of the Legislature the office of Superintendent of Immigration, established by the Board of Agriculture, was abolished, and the duties devolved upon the Commissioner of Agriculture. This Act, however, did not go into effect until on and after April following. Col. Boykin therefore continued in charge of the work until the date mentioned; and makes the following Report of his operations from November 1st, 1882, to the expiration of his term of office:

"After the action of the Legislature in abolishing the office of Superintendent of immigration was known, the correspondence of the office, which was principally of a personal character, and orders looking to the shipment of immigrants about the first of the year, were to a great extent suspended, as it was generally supposed that the Act abolishing the office took effect at once, and it was not understood and appreciated that under any circumstances the work would be carried on as before by the Commissioner of Agriculture. The same idea regarding the immediate abolishment of the office prevailed at New York and Castle Garden. Under the circumstances the shipments were light, amounting to sixty Bohemians and Hungarians in families; while some transfers were made of those already here, who, having left their original places, applied at the office for work. Since the 5th of April the business of the Department has been carried on through the Agricultural Bureau."

During Col. Boykin's administration of the office his time was chiefly occupied in procuring laborers for farmers and others, although he was making preparations for greatly enlarging the work, and the demand for this class of immigrants was very large in 1881 and 1882. Since the duties were imposed upon the Commissioner of Agriculture, owing chiefly to the short crops of the present year, only a very few applications for farm laborers have been made; and as the wages offered by the applicants were not as large as they could obtain elsewhere, we were unable to get the right sort of men, so that the immigration work in this direction for the past year has been suspended.

That the South needs immigration goes without saying; and that South Carolina needs, and would welcome, a large influx of thrifty immigrants is too well known to be argued. We take it, therefore, that it is unnecessary to give any consideration to this part of the subject or to devote any time to urging its importance and advantages upon our people. Recognizing, then, that we need capital and people, the only question for discussion is how to obtain them. No special effort has been made this year in the prosecution of this work for several reasons. The unusual expenses of the Department left us without the necessary funds for this purpose, and, besides, we were not fully prepared to reach the class of people we desired. We want to develop our water power, open our mines, and realize upon our vast timber resources. We can only accomplish this by a proper presentation of the facts to those who have the means to invest in such enterprises.

The compiler of the Hand Book found the work of such magnitude that he could not complete it as soon as he expected, and we could do little or nothing without it. We have, therefore, only endeavored not to lose any ground, but to hold fast to what has already been accomplished and push the work vigorously when we are better prepared. It gives me pleasure to say that the manuscript of the Hand Book is now in the hands of the printer, and copies of it will be laid on the desks of members of the Legislature during the present session.

We have endeavored to extend our foreign correspondence so as to make it available at the proper time. With agencies established at the great immigration centres, the State will have no difficulty in presenting her attractions and securing all the people she will need. The following letter is submitted as showing the character of this correspondence and as indicating the plans proposed to be pursued:

FARNWORTH, WIDNES, ENGLAND, October 22, 1883.

HON. COL. BUTLER, *Columbia, S. C.*

DEAR SIR: I am much obliged by your kind letter of the 2d instant, and also for the book containing such an exhaustive account of South Carolina.

I should be glad to receive from you particulars relating to the situation and price of land you propose settling. I feel sure when the facts respecting climate, resources and other advantages of Carolina are known in this country, people seeking new homes in emigrating there will not be disappointed.

I should be glad to learn the situation of the land you could recommend to me for a farm, and in accepting your kind offer to act as your agent in this country it might be some advantage to me in forwarding those to the same vicinity whom I would like for neighbors. With respect to terms of remuneration, I can safely leave the matter in your hands, but would receive land in part payment, if agreeable to you.

In commencing operations here, I respectfully suggest the following plan of procedure: To take an office in Liverpool, at a rent of one hundred dollars ($100), to where all communications could be addressed; insert advertisements in three papers (London, Manchester and Liverpool). There might also be exhibited in the office products of the State, and I am sure they would not be behind the nursed specimens I see here from the *Great North West!*

I am quite prepared to commence business at once, and shall be glad to hear from you at an early date.

Your obedient servant,

JOHN L. RIGBY.

We are glad to be able to state that the attention of foreign capitalists has been attracted to our State and the advantages it offers for permanent investments, and some of them are now loaning money on real estate collateral at rates much lower than our farmers have heretofore paid for advances on growing crops. We are reliably informed that other companies will enter the State soon, and the competition that will then arise will tend greatly to reduce still lower the rate at which money can be obtained. We do not think we claim too much when we say that the publications and correspondence of the Department have had much to do with introducing foreign capital here. We have from time to time shown the progress South Carolina is making in agriculture and manufactures, and it is this prosperity that has induced those who have money to invest to be willing to place it here. Continued efforts by the Department, and still further advertisement of the State, through the means already alluded to, will increase the investments in our lands, utilize our water powers and develop our mineral resources.

FISH COMMISSION.

The Report of the Superintendent treats very fully of the work of the Fish Commission, and shows that gratifying results have been accomplished during the past season. The large number of applications for German carp shows the great interest the people have in fish culture, and the increasing demand for these fish is ample evidence of their adaptability to our waters. The fish way erected in the Saluda Factory dam and the one now being built in the Savannah River dam will permit migratory fish to ascend those streams, and with the efforts we are making to restock those streams we may reasonably expect shad to be as plentiful in them as in former years. There are other obstructions in both of these streams, but they will also be removed in time for the Spring run of shad.

The Superintendent's Report is herewith submitted:

Hon. A. P. Butler, *Commissioner Fish and Fisheries.*

Dear Sir: I have the honor herewith to transmit the fourth annual report of the work done by the Fish Commission for the year ending October 31, 1883.

The past year has been characterized by no new departure, but the line of action followed by your Superintendent in detail similar to that heretofore marked out. The chief feature and aim being to gain a higher state of perfection in those branches of the work that we have undertaken to develop, rather than to extend, our efforts to other points, that will be developed as the work grows in importance, as it must do from year to year.

We have distributed German carp far in excess of any previous distribution, the demand being owing greatly to a greater appreciation of the fish, as their domestic qualities have become better known, through their introduction into the State but a short time ago. Have made several plants of shad; handled a small lot of California trout; enforced the fish laws where violated, and made some investigations that we hope will result favorably for our future work.

The total number of carp distributed was 8,415, to applicants from nearly every County in the State. We planted from the hatchery on Edisto River 725,000 shad in that river; 300,000 obtained from the United States Fish Commissioner, and shipped by myself from Washington, were planted in the Catawba River at the Charlotte, Columbia and Augusta Railroad crossing, and 350,000, obtained from the same source, were shipped in charge of the Government transportation car and planted in Congaree River at Columbia, besides other shipments made by the

United States Fish Commission and planted in the head waters of Savannah River. On application for a number of California trout eggs to Professor Baird, with his usual promptness in responding to requests from our State, he sent me 5,000 eggs from the trout hatchery on McCloud River, California. I had previously prepared two temporary hatching troughs in the Department building at Columbia for their reception. They came to hand on the 8th of March, and, being engaged at the shad station, I was compelled to entrust them to the care of a novice, after having carefully unpacked and planted them in the troughs, and devoting two days to his instruction as to the care of the eggs. He was devoted and faithful in his attention, and, although never having seen an egg hatched before, and laboring under many disadvantages—high temperature of water, &c.,—he succeeded in saving 1,700 fish, which number, the second week in April, I placed in the pond of Dr. Fahnestock near Walhalla, who had kindly tendered me the use of it until the necessary ponds can be constructed to keep them in. From these fish I hope to obtain a stock from which we will be able to supply the streams of the mountain section of our State, which are well adapted to the requirements of the Califoania trout, (*Salmo Iridœa.*) In addition to this lot, I obtained in May 9,000 of the same trout from the Government, through Senator Hampton, which were turned over to me by the United States Messenger at Seneca, from which point I transported them in person a distance of twenty-five miles by private conveyance through the mountains and planted in fine condition (with the exception of 1,000 lost *en route* from Washington) in the Chatooga River, on the South Carolina and Georgia line.

I have the greatest hopes of this fish in the mountain streams of our State, where our native *Salmo Fontinalis* once was found, but which have been driven further into the heart of the mountains by the advent of man and the cultivation of the lands in the rich valleys of these streams. Since the disappearance of the trout they have become comparatively barren of fish, and the introduction of the California trout will be hailed with delight by the native anglers.

The cost of the year's work, including subsistence and expenses of your Superintendent, has been $1,407.34, as is shown by an accompanying sheet.

According to the best information we have, there are about 52,000 shad taken annually in the waters of South Carolina, which constitutes the source to which we may look for our annual supply of eggs to propagate fry to recuperate our rivers by artificial plants. From fifteen to twenty thousand of this number are taken on Edisto River, within a distance along the river of about eight miles; the remaining number are taken in the waters of Winyah Bay and along Waccamaw River for a distance of twenty or thirty miles, while a few are taken from Santee River, and some, in small numbers, in most of the rivers from tide water to the shoals of the up country.

As has been previously reported, we have established a station, at small cost, on Edisto River, the operations of which for the past season will hereafter be reported; and it now remains for us to develop a station at Georgetown, and utilize, if possible, all ripe fish taken in the waters thereabouts. The fishing here is scattered over a wide area, and any work accomplished must, of necessity, be accompanied by many difficulties, and, at best, we can only hope for a limited number of eggs. To ascertain, if possible, some definite idea of the extent of the fisheries here, and the possibility of utilizing this point as a station, I visited, in June last, Mr. W. St. J. Mazyck, who lives on Waccamaw River, with whom I had had some correspondence on this subject, and made a partial inspection of the fisheries, with a view of locating a station during the present season. I found that the fishing on Waccamaw above Georgetown was done by drift nets, at such distances apart as to render it impossible to attend all the boats with anything like a reasonable force, or with a reasonable hope of collecting sufficient spawn to justify the outlay it would have required to have carried on the work, as the fishing was all done in daylight, at which time we can obtain but few ripe fish. Besides these nets, there are some fish in Winyah Bay, and during the latter part of the season a number of the fishermen go up Sampit River, where they find shadding remunerative. At this season the fish here are in an advanced state, and a majority of those taken are ripe or in the proper condition to obtain eggs from. Mr. Mazyck, writing in May of the present year, informs me that one of the fishermen reported twenty-five ripe shad taken on the 5th of April from one net. This would be, averaging 20,000 eggs to the fish, 500,000 eggs—which would indicate success can we organize a force of spawn taken and establish a collecting station at Georgetown. To have a force of men regularly paid to take spawn, as is usually the case, would be too expensive to think of, where the fishing is so scattering. I therefore propose, after instructing the fishermen in the art of stripping a shad, to furnish them with necessary pans, buckets, &c., and pay them so much a quart for all the eggs impregnated and brought to me in good condition delivered at Georgetown. This can be done, as there is daily communication between this point and points along the river.

It has been ascertained by the United States Fish Commissioner, from repeated experiments, that the shad eggs can be kept for a number of hours on damp cloth spread on wire trays and afterwards hatched successfully. This has been done for several years past by the Government, and is now the common mode of transporting the eggs from the fishing grounds on Potomac River to the hatching stations in Washington. To Mr. S. G. Worth, Commissioner of North Carolina, is due the credit of having shipped the first shad eggs in this way to any considerable distance. He reports success with several shipments last Spring as follows:

> "From Avoca, in Bertie County, I sent during various times during April and May a number of the eggs of the shad to Raleigh on trays of Canton flannel. The two points are distant about 220 miles, and the time they were on trays thirty-one hours. The transfer was highly successful, and over 300,000 fry were hatched at the carp ponds near Raleigh and released into Neuse River near by. The trays used were simple frames made of strips an inch square, with the fabric put on with tacks. When the eggs were ready for transfer, a number of eggs were wet and a layer of ova placed on each, either with a dipper or large spoon. About sixty-four occupy the space of a square inch, and when spread on the trays they slightly compress each other, the appearance being in shape like the cells of honey comb, while the entire mass is nearly as clear and transparent as equal bulk of rain drops. A number of trays supplied with eggs were placed one upon another to the height of ten or twelve inches and the whole number put into a box large and deep enough to allow four to eight inches of moss to be introduced between the trays and box. Ice broken finely was mixed with the long moss of the coast, and a complete cushion of it packed on all sides and beneath. The moss formed an easy spring to prevent sudden jars and at the same time arrest any undue rise in temperature. Boxed in this manner, they were sent to Raleigh by Express without an attending messenger. * * *
> I wrote Prof. Baird, the United States Fish Commissioner, and told him of the shipment of eggs made to Raleigh, and begged him to aid me in pressing the experiment further. With usual courtesy he promptly responded by sending three lots consisting of 400,000 eggs; the first in charge of a special messenger, and the two latter by Express. The first underwent a loss of 97 per cent., but the two latter, packed in accordance with my suggestions, suffered a loss of only 3½ per cent."

It will be seen from this experiment here given in detail that the old and tedious method of transporting shad fry, which are delicate in the extreme and very difficult to transport, must soon give way to the transportation of the eggs instead, which must prove in every respect more satisfactory, as smaller loss will be incurred and the cost in money and labor much reduced. Can we be successful in collecting eggs at Georgetown, as above proposed, they can be easily shipped to Columbia, where a central station will be located, and from which point all the principal rivers in the State are in easy access.

Hatchery on Edisto River.

Although the number of eggs taken at this point is small, never before having exceeded the take of this year, which was little more than one million, this is probably the most available location in the State for a shad station. The water is clear, and in nearly every bend of the river there are sand bars which are natural spawning grounds for all fish coming to maturity before having passed this point in the river, and could we have the advantages of haul seines along the river in the several seining holes, used in former times, we would doubtless catch many more fish in ripe or mature condition than it is possible to do with the gill nets, as I am confident the mature fish tarry around the favorite spawning places and are not captured with the immature ones that travel with the tide as soon as it begins to flood, at which time the nets are set. This season we have taken more eggs than at any previous year, owing in part to more favorable weather, and partly to the fact of our having a larger corps of faithful assistants, with which we were enabled to attend every net fished on the river whenever fished, regardless of cold, rain, midnight hours and many other disadvantages under which we labored. The fishing is all done after dark, and at nightfall the men all left camp, some going two or three miles up the river, and others a like distance in the opposite direction, and others at their posts at intermediate points, all subjected more or less to hardships, and some remaining all night in open boats on the river, subjected often to rough and disagreeable weather.

I began work with five assistants, only one of the number having ever seen a shad egg taken before; but after a short time, in which I explained the *modus operandi* of shad stripping by going through the process with a ripe shad in the presence of those that had no knowledge of the work, they became familiar with the method and lost no eggs that came in their reach.

While I am aware of the small number of fish released in comparison to our necessities and the work accomplished by other States, yet, in view of all the surroundings and the amount of money expended, the season's work was highly gratifying, and a reasonable hope may be entertained that we will be able in a few years to increase the capacity of this station, so that the Edisto may be abundantly stocked and shipments made to other rivers. A few fishermen make their appearance on the river the latter part of January, and, by the 15th of February they are all at their accustomed localities and the season is in full blast and continues till the first week in April, when the shad become scarce and the gar fish so numerous and destructive to the nets that the fishermen are compelled to abandon further operations and surrender the river to them.

Their work of destruction is so sure and well known that it has become a custom among the fishermen to raise a white flag over their camps when these fish appear—which is a signal of surrender—and in a few days time they are abandoned. I opened the hatching house here about the 1st of March and ordered the "McDonald automatic glass hatching jar," but, owing to delays at the manufacturer's, I did not receive them till late in the season, and so had to use the tin cans that were on hand.

After the receipt of the jars the per cent. of eggs hatched was much better, and had I begun the season with them the number of fish released would have been greater. We are indebted to Colonel M. McDonald of Virginia, the inventor, for this jar, which far surpasses any apparatus for shad hatching that fish culturists have yet known.

"*Fish Ways.*"

The subject of a fish way in the canal dam at Augusta, Ga., as you well know, has for the past three years claimed our attention—and the obstruction during the entire time been the cause of bitter complaint, both from our people along the upper Savannah and also those of Georgia. All attempts, both on the part of Georgia and South Carolina, to obtain a passage for fish over this dam have been baffled. During the past Summer, in reply to a letter to Mr. S. C. Brown, Business Manager of the McDonald Fish Way Co., in regard to constructing a fish way here, he says: "The company will contract for and construct a fish way of the *improved pattern* and *guarantee* the working of the same." His proposition has been accepted and a contract entered into for the construction of the way. Work has already been begun and the way will probably be completed in ten days or two weeks from this time, (10th November). The Saluda Manufacturing Company have completed and now have in successful working order one of the same model over their dam on Saluda River at their factory. Below I give letters both from the company and the engineer in charge of the construction, which attest the fact of its proper construction:

COLUMBIA, S. C., September 25, 1883.

C. J. HUSKE, *Superintendent of Fish and Fisheries.*

DEAR SIR: In reply to yours of 25th, in reference to fish way built over the Saluda Manufacturing Company's dam, would say:

This fish way is built after the plan known as the McDonald fish way. It was built under my supervision and after my plans adapting it to the locality. It consists of three and one-half sections, thirty-six feet long, with a total rise of nine feet. It is substantially built, well secured to the bed rock by heavy iron bolts, and conforms in every detail to the plans of the McDonald fish way. It is claimed in this plan that by means of two sets of buckets—a straight wooden bucket to receive the water in its downward flow and a curved iron bucket to direct this water back up stream—that an eddy or checking of the water is produced over the iron buckets. The Saluda fish way is now in operation, and I find that this eddy or slacking of the current is made over the iron buckets, affording a comparatively quiet water way for the fish to ascend. I see no reason why this will not answer all purposes intended, *provided it is kept free from trash.*

Respectfully yours,
THOS. B. LEE,
Engineer in charge.

COLUMBIA, S. C., September 27, 1883.

Mr. C. J. HUSKE, *Superintendent Fish and Fisheries:*

Your favor of 25th received. We have finished a substantial, and, as we think, (also our County Commissioners and all others who have seen it) a good fish way over our dam at Saluda Factory—over the Saluda River. We have put in the McDonald plan according to the specifications of his model. We have had the work done under the superintendence of an engineer, Major Lee, and we have complied with the law in all respects. We think it will pass all the fish which desire to go up the stream. We have invited, and do invite, all interested to inspect the same. Hoping you may examine and satisfy yourself and receive the same,

We are yours, &c.,
SALUDA MANUFACTURING COMPANY.

Cyprinus Carpio.

In order to obtain some correct data relative to the German carp that we have distributed for private ponds in the State, I sent out 450 circulars to parties having received fish in 1879–'80–'81 and 1882, asking for the result of their experience in carp culture.

I have been unable to obtain a complete report, having received in reply only 110 of the circulars sent out, and these only partially filled out, so that my object has been only partially accomplished; but the accompanying table will suffice to show that the carp, as a pond fish, for those desiring to raise them in our State, has proven an entire success beyond peradventure, and as a table fish it has been pronounced fine by nearly all that have eaten it. So it only remains for those desiring to have an abundance of fresh fish always at hand to expend a small amount of time and money and observe the teachings and experience of those versed in carp culture. Many of those sent out by the Department have been lost through insecure dams, or by placing them in waters where all manner of fish-eating varmints and fish abound—in short, from having no care whatever taken of them after having been received; but as the interest has increased every year, a more general knowledge of the construction of ponds has been disseminated among the amateur carp culturists of the State and the future promises more universal success. Those who have succeeded are enthusiastic in their praise, and those who have lost their fish are determined to take more care in the future and are anxious to be supplied again. The number of applications now on file are more than eight hundred, to be supplied this Fall. To meet this demand we have a number of fish in the State ponds, and Prof. Baird thinks he will be able to supply all we want from the Government ponds. The extent to which this fish may be cultivated in our State is almost without limit, and utilizing the abandoned rice fields of the coast region for this purpose is a question which I have long thought of. It seems possible that here we may have unlimited success both in numbers and size of fish, and if my conjecture be true there is no reason why the rivers of the up country, and, indeed, the waters of the entire State, should not in five years yield a supply of fish that would in no mean proportion add to the food supply of our land. For some time past I have been in correspondence with Mr. R. J. Donaldson of Georgetown upon the subject of carp culture on the rice fields, and shall visit his plantation in a short time for the purpose of effecting satisfactory arrangements with him for this work. The fields will be prepared this Winter and stocked with adult fish that will spawn next Spring. The following table and accompanying extracts from some of the returns I have received will show with what success the carp have been introduced into our State:

DISTRIBUTION OF CARP.

Date.	Number of Fish Received.	Number Now on Hand.	Length.		Weight.		Have They Spawned?	Do You Consider It a Good Table Fish?	Name.
			S.	L.	S.	L.			
Jan., 1880.	20	5	22 in.	25½	5½ lbs	10 lbs	Yes.	Yes.	Capt. A. P. West.
1881–82.	50	None.	......	......	.....	......	....	....	S. P. Wingard.
1881.	20	15	10	......	......	1	No.	Yes.	W. A. McDaniel.
1881.	20	20	......	16	4	......	Yes.	Yes.	S. R. Blankinship.
1880.	20	None.	......	......	......	......	....	....	C. J. Moody.
1881.	40	15	20	......	6	......	Yes.	Yes.	W. M. Walker.
1880–82.	65	10	10	16	......	......	Can't say.	Can't say.	L. J. Jones.
1882.	20	4	......	15	......	3	No.	Can't say.	W. T. Jumper.
1883.	20	20	6	8	......	......	No.	Can't say.	R. W. Simpson.
1882.	23	16	4	8	......	......	No.	Can't say.	J. A. Doyle.
1882.	39	35	......	16	.....	......	No.	Can't say.	J. F. Atkinson.
1881.	20	3	12	......	......	......	No.	Yes.	M. H. Hill.
1882.	19	6	7	......	......	......	No.	Yes.	E. B. Clark.
1881.	14	....	......	......	......	6	Not known.	....	W. M. Bostick.
1882.	20	10	8	......	½	¾	No.	Yes.	Dr. J. W. Folk.
Jan., 1883.	18	6	......	14	......	2	No.	....	S. Robt. Simonton.
1880.	15	14	20	24	4	5	Yes.	....	J. W. Holloman.
1883.	20	5	12	14	1½	2	No.	....	W. W. Boyce.
1882.	20	....	20	30	3½	4½	No.	....	S. B. Mays.
1883.	20	20	13	15	1¼	1½	No.	Yes.	Gen. Paul Quattlebaum.
Dec., 1881.	20	6	......	24	......	8	Yes.	....	J. W. Young.
1882.	20	4	14	16	2	3	No.	Yes.	W. J. Torck.

DISTRIBUTION OF CARP.—CONTINUED.

DATE.	NUMBER OF FISH RECEIVED.	NUMBER NOW ON HAND.	LENGTH.		WEIGHT.		HAVE THEY SPAWNED?	DO YOU CONSIDER IT A GOOD TABLE FISH?	NAME.
			S.	L.	S.	L.			
Dec., 1882.	18	6	14	......	......	......	No.	....	James A. McAlister.
1882.	20	All Lost.	......	......	......	......	....	....	W. F. Hames.
Feb., 1883.	20	10	......	......	......	......	....	....	A. E. Lesley.
Dec., 1882.	17	5	12	......	......	......	No.	....	R. F. Lenhardt.
1882.	13	10	8	......	8 oz.	......	No.	Yes.	J. H. Goodwin.
Feb., 1883.	20	20	12	......	2½ lbs	3	No.	....	R. H. Kennedy.
1879.	12	None.	......	......	......	......	Yes.	Yes.	A. D. Bates.
Dec., 1881.	40	Can't say.	18	24	3½	4	Yes.	....	E. T. Atkinson.
Jan., 1883.	20	10	9	......	¾	......	No.	....	D. L. Miller.
1881.	38	5	22	......	......	10	Yes.	Yes.	Samuel Hunter.
Nov., 1882.	25	24	12	14	......	......	No.	Yes.	Joseph Shumpert.
Dec., 1882.	20	2	6	7	......	......	No.	Yes.	J. M. Garrison.
Jan., 1883.	20	20	15	18	2	2½	No.	....	J. C. Long.
1883.	20	18	15	......	......	......	Yes.	Yes.	J. F. Vance.
Nov., 1881.	20	18	24	......	......	7	Can't say.	Can't say.	Zimmerman Davis.
April, 1883.	20	18	12	15	2	3	No.	Can't say.	M. L. Kyzer.
Feb., 1881.	20	10	18	20	......	6	Yes.	Yes.	Alex. McBee.
Dec., 1882.	57	32	12	......	......	......	No.	Yes.	J. R. Murff.
1881.	30	3	15	......	......	......	Yes.	Yes.	R. W. Shelor.
1881.	100	64	23	25	6	......	No.	Yes.	R. E. Guthrie.
1880.	....	....	18	24	......	......	Yes.	Yes.	J. F. Hinson.
1881.	....	....	18	20	1	5	Yes.	Yes.	John C. Witherspoon.

DISTRIBUTION OF CARP.—CONTINUED.

DATE.	NUMBER OF FISH RECEIVED.	NUMBER NOW ON HAND.	LENGTH.		WEIGHT.		HAVE THEY SPAWNED?	DO YOU CONSIDER IT A GOOD TABLE FISH?	NAME.
			S.	L.	S.	L.			
Jan., 1880.	12	6	......	......	6½	......	Yes.	Yes.	Rev. Joseph T. Jeter.
Dec., 1881.	20	9	15	20	1½	3	....	....	R. W. Cowan.
1881.	25	16	15	18	4	6	Yes.	....	P. H. Caughman.
1881.	60	50	18	24	4½	5½	....	Yes.	T. P. Whitesides.
Dec., 1882.	20	20	12	......	......	......	No.	....	M. Chapin.
Nov., 1882.	18	2	8	......	2½	......	No.	Yes.	J. Y. Thomson.
1882.	20	2	12	......	2½	......	No.	....	W. J. Well.
1880.	20	20	6	8	¾	1	No.	Yes.	S. B. Massey.
Dec., 1882.	20	12	16	......	......	......	No.	....	W. R. Hay.
1882.	20	....	9	10	......	3	No.	....	W. J. Hix.
1881.	36	9	19	24	5	6	....	....	Andrew Sheeley.
	40	25	13	......	......	......	....	....	D. F. Barnett.
Dec., 1882.	20	3	8	......	......	......	No.	Yes.	C. W. Stokes.
1881.	20	17	18½	......	3¼	......	....	Yes.	L. C. Sigmon.
1881.	20	18	16	22	3	5	Yes.	Yes.	T. Henry Stokes.
1882.	20	2	5	......	......	......	No.	Yes.	N. Y. Cooner.
1881.	20	10	12	......	......	......	Yes.	....	W. H. Terry.
1882.	18	18	12	15	......	......	No.	....	R. L. Lewis.
1881.	20	11	12	15	2	3	Yes.	Yes.	Isaac P. Garrison.
1881.	20	13	15	......	1½	2½	No.	Not very.	Geo. W. Bonner.
1881.	22	....	......	......	5¾	6½	Yes.	....	J. L. Westmoreland.
1881.	19	17	10	13	1	2	....	Yes.	J. R. Harris.

DISTRIBUTION OF CARP.—CONCLUDED.

DATE.	NUMBER OF FISH RECEIVED.	NUMBER NOW ON HAND.	LENGTH.		WEIGHT.		HAVE THEY SPAWNED?	DO YOU CONSIDER IT A GOOD TABLE FISH?	NAME.
			S.	L.	S.	L.			
Dec., 1881.	20	13	12	......	1½	......	No.	Yes.	W. B. Goodwin.
1881.	20	9	14	17	4	6	No.	....	J. N. Rutherford.
1882.	20	20	19	20	4	6	No.	....	Jno. W. Holland.
1881.	20	20	16	18	4	5	Yes.	....	A. J. Monroe.

Captain A. D. Bates, Batesburg, says: "My pond is one-eighth of an acre and eight feet in deepest place; black, muddy bottom, and fed by springs. Have sold four hundred and sixty (460) fish for $223.50. Two years after I received my carp—in 1879—I drew off my pond and found eight of the original ones. They were twenty-five inches in length and weighed from six to seven and one-half pounds. I found forty small ones about fourteen inches long and weighing one and a quarter pounds. I ate the large ones and gave away all the young ones except fifteen. Next Spring—a year after—I drew off my pond. I found all I had put back weighing from six to ten pounds, and there were four hundred young ones that weighed from one-quarter to one pound. My carp spawned this year about the 20th of April. I cannot draw my pond now on account of the extreme dry weather, as it would not fill up again till it rains."

In a letter of a more recent date he says:

"Dear Sir: I send you this A. M. a carp 17 inches in length, weight 2½ pounds, age six months; think its growth remarkable. I drew off my fish pond 11th of April last, and took eleven of the number of carp obtained therefrom and put them in a highland pond in front of my house. This pond covers six or seven acres when full, and is about 3½ feet deep in the deepest place. A few days ago I took the eleven carp out of the pond, as it is nearly dry—only a little water in a ditch that runs through it. The carp weighed when put in the highland pond one pound each. They remained in this pond six months and weighed a few days ago when taken out from six to seven and one-half pounds. It was on the 20th of April last when I first saw young fish in my pond. I caught nine of them and put them in the same highland pond mentioned above. The one I send you is one of the nine. I found five of them. The largest one I think weighed over three pounds. I did not think of sending you one at first, and the largest one was put in the fish pond before I thought of it. The highland pond is supplied by rain—there is no spring in it. During the hottest days in Summer the water in the pond is hot enough to be unpleasant to the hand."

W. M. Walker, Yorkville, says: "I fully appreciate the carp and would not for any reasonable amount part with them."

S. P. Blankenship, Pineville, N. C., says: "I received twenty fish from the North Carolina Commissioner and twenty were sent to an unknown person by Express to this place, which were given to me by Express agent, which with the twenty I received from you makes sixty fish I received. I feed them on boiled rice, wheat, peas and scraps from the table. They seem to be doing well. I cannot count the young, but they are very numerous. I expect to have an abundance of fish, even in my small pond, for my table another year."

M. S. Walker, Edgefield, reports: "In December, 1881, I received from you fifteen German carp and placed in my pond. On the 1st of November, 1882, I drew off the water and only found four of them; they have grown well and weigh about from four pounds each. Again in January, 1883, I received twenty-one from you by Express. A great many carp could be seen in my pond in April and May from the six old ones. I think they are doing fine. The character of the soil of pond is muddy and the vegetation fine. As regards the eating qualities, I can say nothing, as I have never tried them."

Gen. Paul Quattlebaum, Leesville, says: You will remember that during last Winter I constructed a carp pond, near my residence, and that it is modeled after the most approved plan as laid down by eminent writers of experience in carp culture in Germany, as well as by the learned Superintendent of the United States fish ponds near Washington, D. C. The man who meanly builds a dam across a small stream and lets all the water—often increased by floods of rain—flow in and through the pond, and over an ordinary waste weir, is greatly deceived if he thinks he has a carp pond at all adapted to hatching or even rearing carp successfully. My pond is supplied with water from a pond at its head, in which I do not propose to rear fish of any kind. The upper pond has an outlet through a ditch of sufficient capacity to let all the surplus water pass along the side of the lower or carp pond. The rain water from the hillside is cut off by a ditch running near the margin of the pond, and all water that enters it is conducted below the dam. This ditch, together with the little canal on the other side of the pond, and a plank fence from one to the other at the dam, form a complete *bar* to turtles and other depredators that would like to enter such rich pastures. I was very particular to construct the *inlet* as well as the outlet, so that a fish can neither enter nor escape, deeming it, however, of more importance that all other fish should be kept out than that a few carp should escape: for if the depredators be kept out the pond will soon be over-stocked with young carp. I received from you twenty carp in June, 1883, and from other sources some thirty-eight scale carp in February, 1883, from two to three inches long. On the 16th of February, Mr. Moore, your messenger, placed in the pond twenty-seven carp belonging to the Fish Department of the State, in accordance with your previous arrangement with me. Some of these latter spawned as early as the 12th of April, and there are young fish now in the pond, as I suppose from that early spawning, from ten to twelve inches in length. The scale carp are from twelve to fifteen inches long. Thirty-one of these were caught by me with a beardless bream hook. I caught them in less time than I ever saw so many fish caught with a hook. I think that when we draw off my pond, which I will be ready to do whenever you may say so, in November or December, we will then find a satisfactory yield of young fry.

J. N. Rutherford, Walhalla, writes: "I am well pleased with my prospects in carp culture. I feed on bread, potatoes, fruit, cabbage, lettuce, corn, blackberries and grapes; all of which the fish eat very greedily. I am annoyed a great deal with muskrats, which make the fish very shy. Think they come after food; don't think they eat fish. There may be more than nine fish in the pond, as reported, but they are all I can find."

S. P. Garrison, Fort Mills, reports his pond ¼ acre, 1 to 4 feet deep. Received fish in 1881, and has a large number of young now in his pond.

N. G. Cooner, Batesburg, reports pond 2-5 of an acre, 5 feet deep and fed by springs. Received, besides 20 fish from Fish Commissioner in 1882, 5 from another source in 1881, and now has numbers of young carp.

T. Henry Stokes, Alba, writes: "I regard the carp a splendid table fish —pronounced so by a large number of ladies and gentlemen who partook of them on two separate occasions. One carp made a large dish full and was sufficient for all. I have taken much pains in feeding them and call them up with a small bell, as they are very gentle."

W. P. Hoy, Millville, says: "I am highly pleased with the carp. I drew my pond on the 25th April and the fish were 4 to 6 inches long, and in August I again measured them, when they were 14 inches, having grown 8 inches in less than four months."

M. L. Kyzer, Barr's Landing, says: "I received 20 carp from you last April, which were about 2 inches long. They have done well and are now 12 to 15 inches and will weigh from two to three pounds. I am well pleased with them and think they are a success."

S. B. Massey, Chester, writes: "I received carp from your Department January, 1880, and now have the original 20, which are from 6 to 8 inches long and weigh ¾ to 1 pound. Pond is fed by springs and is blue mud bottom. We have the black perch and blue catfish, far superior as a pond fish, and can cultivate with better results than the German carp, and are a natural product of South Carolina."

Hon. John C. Witherspoon, Rock Hill, says: "The German carp furnished me December, 1881, by the Department of Agriculture, I am pleased to say, have grown beyond my expectations; none have died or been destroyed as I know of, save one in April, injured, I suppose, by a muskrat; it would weigh two pounds and had eggs in it. Caught one in August which weighed 2¾ pounds, which also had eggs in it. In September caught three female fish which had no eggs in them, so think they have spawned. Some of the larger fish will weigh 4 to 5 pounds."

Our work has been much facilitated and the expense greatly reduced by the courtesy shown us by the different railroads in the State in responding promptly to all requests asking free transportation to men and fish cans, for which we herewith tender our sincere thanks.

Respectfully,
C. J. HUSKE,
Superintendent.

Receipts and Disbursements of Fish Commission from November 1, 1882, to Octobar 31, 1883.

Amount due November 1st, 1882		$ 20 40
Paid Transportation		223 90
Improvements		153 88
Assistance		318 30
Subsistence		375 19
Telegrams, postage, etc		7 70
Sundries		174 37
Received from A. P. Butler, Comm'r Agriculture,	$1,207 39	
For shipping tickets	66 35	
	$1,273 74	$1,273 74

C. J. HUSKE,
Superintendent Fish and Fisheries.

RECORD OF TEMPERATURE AND NUMBER OF EGGS TAKEN AT THE SHAD STATION ON EDISTO RIVER SEASON 1883.

DATE.		TEMPERATURE OF						WIND.			CONDITION OF		Number of Eggs Taken.	REMARKS.
		7 A. M. Air.	7 A. M. Water.	12 M. Air.	12 M. Water.	6. P. M. Air.	6. P. M. Water.	Direction.	Direction.	Direction.	Sky.	Water.		
1883.														
March	1	60	53	74	60									
"	2	47	54	68	57	69	60	E	SW	W	Hazy	Clear		
"	3	53	55	70	62	64	60	NW	NW	NW	Clear	"		
"	4	42	54	72	60	67	61	E	W	SW	"	"		
"	5	50	56	64	61	60	60	W	E	NE	"	"		
"	6	60	58	66	59	66	61	S	SE	SW	Clo'dy	"	20,000	2 P. M.
"	7	63	60	65	62	64	61	S	W	W	"	"	10,000	8 P. M.
"	8	50	58	51	56	48	54	N	NE	NE	"	"	15,000	8 P. M.
"	9	45	50	50	50	51	51	NE	NE	N	"	"		
"	10	46	48	58	50	60	54	W	NW	W	Clear	"		
"	11	48	52	58	54	57	54	S	NW	NW	"	"		
"	12	42	50	56	52	52	60	W	SW	W	"	"	30,000	10 P. M.
"	13	44	50	62	54	64	59	NW	NW	NW	"	"	20,000	Taken at 12 P. M.
"	14	51	52	62	54	64	56	SE	NW	W	Clo'dy	"	30,000	Taken bet. 10 and 12 P. M.
"	15	......	......	63	56	68	60	....	SW	NW	"	"	20,000	Taken at 10 P. M.
"	16	56	56	59	58	61	61	NW	W	W	Clear	"	95,000	Taken about 3 A. M.
"	17	41	52	54	55	55	56	SE	W	W	Clo'dy	"	42,000	Tak'n bet. 12 P. M. and 3 A. M.
"	18	51	52	64	55	65	62	W	W	SW	Clear	"		
"	19	56	64	72	60	69	64	W	W	SW	Clo'dy	"	122,000	Taken between 6 and 7 A. M.

RECORD OF TEMPERATURE AND NUMBER OF EGGS TAKEN AT THE SHAD STATION ON EDISTO RIVER SEASON 1883.

DATE.	TEMPERATURE OF						WIND.			CONDITION OF		Number of Eggs Taken.	REMARKS.
	A. M.		12 M.		6 P. M.								
	Air.	Water.	Air.	Water.	Air.	Water.	Direction.	Direction.	Direction.	Sky.	Water.		
1883.													
March 20	63	61	67	61	54	63	NW	W	NW	Clear	Clear	180,000	Taken at 8 P. M.
“ 21	54	58	60	60	......	......	NW	W	....	“	“	193,000	Taken at 9 P. M.
“ 22	54	59	58	60	......	.....	W	W	....	Clo'dy	“	20,000	Taken at 9 P. M.
“ 23	55	54	62	58	62	61	W	W	S	Clear	“	185,000	Taken at 10 P. M.
“ 24	51	54	56	58	52	60	N	NE	NE	“	“		
“ 25	58	56	59	56	59	56	E	E	E	Clo'dy	“		
“ 26	49	54	52	54	52	54	W	NW	NW	“	“		
“ 27	60	54	62	56	66	60	W	W	NW	Clear	“		
“ 28	80	56	88	59	62	65	NW	NW	S	“	“	60,000	Taken between 10 and 12 P. M.
“ 29	64	59	72	62	66	62	W	S	S	Clo'dy	“	65,000	Taken between 10 and 12 P. M.
“ 30	72	64	76	66	70	68	NW	S	S	“	“	45,000	Taken between 10 and 12 P. M.
“ 31	......	......	74	68	70	68	SW	SE	....	“	“		
April 1	54	62	58	62	58	62	NE	NE	....	“	“		
“ 2	56	60	60	62	62	64	NE	NW	....	“	“		
“ 3	53	58	61	62	58	66	NE	W	SW	Clear	“		
“ 4	58	60	60	62	66	69	NE	E	SE	“	“		
“ 5	64	64	69	64	68	66	SE	SE	SE	Clo'dy	“		
“ 6	66	64	......	......	......	......	....	SE	....	“	“		

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.							
Dec.	14	Newly, F. P	Traveller's Rest	Greenville	By Express	By Express Agent.	20
“	14	Boling, S. C	Greenville	“	“ “	“ “ “	20
“	14	Boling, John W	Traveller's Rest	“	“ “	“ “ “	20
“	14	McCarrell, G. W	White Horse	“	“ “	“ “ “	20
“	14	Williams, Tyne L	Traveller's Rest	“	“ “	“ “ “	20
“	14	Cox, B. B	Lima	“	“ “	“ “ “	20
“	14	Crittenden, S. S	Traveller's Rest	“	“ “	“ “ “	20
“	14	Tanner, Carter	Greenville	“	“ “	“ “ “	20
“	14	Mauldin, W. L	“	“	“ “	“ “ “	20
“	14	Robb, Alexander	“	“	“ “	“ “ “	20
“	14	Franklin, B	Cokesbury	Hodges	“ “	“ “ “	20
“	14	Johnston, Silas	Newberry	Newberry	“ “	“ “ “	20
“	14	Shumate, H. S	Brewerton	Donnald's	“ “	“ “ “	20
“		McCann, Thomas H	Greenville	Greenville	Shipped by U. S.	Government.	
“	14	Goodwin, John H	Merrettsville	“	By Express	By Express Agent.	20
“	14	Ligon, R. B	Piedmont	Piedmont	“ “	“ “ “	20
“	14	Stokes, Charles W	Alba	Belton	“ “	“ “ “	20
“	14	Sligh, John C	Pomaria	Pomaria	“ “	“ “ “	20
“	14	Setzler, Picken O. W	“	“	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.							
Dec.	14	Murff, J. R.	Brewerton	Donnald's	By Express	By Express Agent	20
"	14	Smith, Joel F.	"	"	" "	" " "	20
"	14	Holland, John W.	Clear Springs	Greenville	" "	" " "	20
"	14	Smith, Wm. F.	" "	"	" "	" " "	20
"	14	Wilber, Dr. J. Q.	Cross Hill	Laurens	" "	" " "	20
"	14	Tribble, J. L.	Anderson	Anderson	" "	" " "	20
"	14	Scott, Robert	Line Creek	Honea Path	" "	" " "	20
"	14	Talley, S. B.	Bellevue	Greenville	" "	" " "	20
"	14	McAllister, James A.	Stoney Point	Anderson	" "	" " "	20
"	14	Wiles, J. A.	" "	"	" "	" " "	20
"	14	McGee, Rev. M.	Anderson	"	" "	" " "	20
"	14	Jones, J. I.	Pliney	Greenville	" "	" " "	20
"	14	Grisham, W. S.	"	"	" "	" " "	20
"	14	Benson, W. W.	Traveller's Rest	"	" "	" " "	20
"		Latimer, A. C.	Belton	Belton	" "	" " "	20
"	14	Earle, E. P.	Sadler's Rest	Anderson	" "	" " "	20
"	14	Williams, S. G.	Brushy Creek	Greenville	" "	" " "	20
"	14	Sitton, Samuel M.	" "	"	" "	" " "	20
"	14	Sitton, Jno. W.	" "	"	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.							
Dec.	15	Eleazer, W. S.	Spring Hill	Alston	By Express	To W. S. Eleazer	20
“	14	McKinney, W. F	Bellevue	Greenville	“ “	By Express Agent	20
“	14	Gilkerson, J. L	Line Creek	Honea Path	“ “	“ “ “	20
“	14	Wells, W. S	Greenwood	Greenwood	“ “	“ “ “	20
“	14	Gruber, Edgar E	Line Creek	Honea Path	“ “	“ “ “	20
“	14	McCullough, D. S	Honea Path	“ “	“ “	“ “ “	20
“	14	Mullikin, M. L	Toney Creek	Belton	“ “	“ “ “	20
“	14	Westmoreland, O. P	Cedar Grove	Greenville	“ “	“ “ “	20
“	14	Bailey, G. B	Greenwood	Greenwood	“ “	“ “ “	20
“	14	Earle, J. W	Holland's Store	Anderson	“ “	“ “ “	20
“	14	Hunter, Dr. S. M	Greenville	Greenville	“ “	“ “ “	20
“	14	Blake, W. K	Greenwood	Greenwood	“ “	“ “ “	20
“	14	Wicken, Jno. P	Walton	Pomaria	“ “	“ “ “	20
“	14	Hammett, E. P	Piedmont	Piedmont	“ “	“ “ “	20
“		Towns, S. A	Greenville	Greenville	By the Government		
“		Bates, E. S	“	“	“ “ “		
“		Hahn, Francis	“	“	“ “ “		
“	15	McGregor, Alex	Jonesville	Jonesville	By Express	By Express Agent	20
“	15	Webber, B. F	“	“	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.							
Dec.	15	Jeter, T. B	Union	Union	By Express	By Express Agent	20
“	15	Rice, B. H	Union	Union	“ “	“ “ “	20
“	15	Moseley, D	Jonesville	Jonesville	“ “	“ “ “	20
“	15	Lowndes, C. T	Hendersonville.	Hendersonville.	“ “	“ “ “	20
“	15	Ruff, J. H. M	Glymphville	Strother's	“ “	“ “ “	20
“	15	Ruff, Wm. H	“	“	“ “	“ “ “	20
“	15	Choice, Wm.	Spartanburg	Spartanburg	“ “	“ “ “	20
“	15	Coleman, G. W	Shelton	Shelton.	“ “	“ “ “	20
“	15	Thomson, Isaac G	Jonesville	Jonesvllle	“ “	“ “ “	20
“	15	Norman, R. C.	Gowensville	Gowensville	“ “	“ “ “	20
“	15	Earle, Rev. Thos. J	“	“	“ “	“ “ “	20
“	15	Williams, P. P	Jonesville	Jonesville	“ “	“ “ “	20
“	15	Hames, W. F	“	“	“ “	“ “ “	20
“	15	Landrum, J. B. O	Campobello	Compobello	“ the Governm'nt	“ “ “	20
“	15	Tuck, W. J	Shoally	Spartanburg	“ Express	“ “ “	20
“	15	Bonner, J. C	Martinsville.	“	“ “	“ “ “	20
“	15	K[illegible]it, Joseph L.	Glymphville	Strother's	“ “	“ “ “	20
“	15	Hoy, W. P	Millville	Spartanburg		To W. P. Hoy	20
“	15	White, Thos. J	Spartanburg	“	By Express	By Express Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OE APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1882.						
Dec. 15	Garrett, J. W	Spartanburg	Spartanburg	By Express	By Express Agent	20
“ 15	Little, Robert	Kelton	Union	“ “	“ “ “	20
“ 15	Meador, M. B	Meador	Santuc	“ “	“ “ “	20
“ 15	Thomas, R. S	Santuc	“	“ “	“ “ “	20
“ 15	Littlejohn, Calvin	Pacolet Depot	Pacolet Depot	“ “	“ “ “	20
“ 15	Gregory, A. J	“ “	“ “	“ “	“ “ “	20
“ 15	Faris, D. A. T	“ “	“ “	“ “	“ “ “	20
“ 15	Haile, Felix C	Jonesville	Jonesville	“ “	“ “ “	20
1883.						
Jan. 3	Lesley, A. E	Abbeville	Abbeville	“ “	“ “ “	20
“ 3	Crisp, M. B	Mounvtille	Laurens	“ “	“ “ “	20
“	Kilgore, D. B. F	Woodruff	“	“ the Governm'nt		
“ 3	Templeton, H. C	Laurens	“	“ Express	“ “ “	20
“ 3	Westmoreland, S. P	Cedar Grove	Greenville	“ “	“ “ “	20
“ 3	Vance, S. F	Clinton	Clinton	“ “	“ “ “	20
“ 3	Davenport, John	McPherson's	Laurens	“ “	“ “ “	20
“ 3	Garlington, Creswell	Laurens	“	“ “	“ “ “	20
“ 3	Watson, Wm	Walhalla	Walhalla	“ “	“ “ “	20
“ 3	Clemson, Thomas G	Pendleton	Pendleton	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.						
Jan. 3	Verner, Hon. J. S	Walhalla	Walhalla	By Express	By Express Agent.	20
" 3	Crinshaw, Newton	"	"	" "	" " "	20
" 3	Bitt, Thomas	Seneca City	Seneca City	" "	" " "	20
" 3	Phillips, J. C	Long Creek	Walhalla	" "	" " "	20
" 3	Simpson, R. W	Pendleton	Pendleton	" "	" " "	20
" 3	Arre, G. C	Long Creek	Walhalla	" "	" "	20
" 3	Phillips, W. H	" "	"	" "	" "	20
" 3	Phillips, J. B	" "	"	" "	" "	20
" 3	Doyle, Jas. A	Fort Madison	Fort Madison	" "	" "	20
" 3	Phillips, Jonas	Long Creek	Walhalla	" "	" "	20
" 3	Hull, Daniel A	Westminster	Westminster	" "	" "	20
Dec. 22	Shanklin, Gus	Seneca City	Seneca City		To Senator Shanklin	20
Jan. 3	Kay, G. W	Westminster	Westminster	By Express	By Express Agent.	20
" 3	Porter, C. C	"	"	" "	" " "	20
Dec. 19	Corry, Jas. A	Gaffney	Gaffney		To Hon. T.J.Moore	20
June 3	Taylor, W. Perry	Greer's Station	Greer's Station	By Express	By Express Agent.	20
" 3	Newton, J. H	Pickens	Easley	" "	" " "	20
" 3	Lenhardt, R. F	Easley	Easley	The Government.		

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1882.							
Jan.	3	Brown, J. J	Gaffney City	Gaffney City	By Express	By Express Agent.	20
"	3	Reid and Jenkins	Reid's	Taylor's	" "	" " "	20
"	3	Prockett, Jno. B	Westminster.	Westminster	" "	" " "	20
"	3	Bates, Hon. E. H	Maynard	Easley	" "	" " "	20
"	3	Ellison, C. J	Brushy Creek	"	" "	" " "	20
"	3	Simpson, M. H	Westminster	Westminster	" "	" " "	20
"	3	Bright, W. W. F	Maynard	Easley	" "	" " "	20
"	1	Seastruck, Samuel	Lexington	Lexington	" "	" " "	20
"	1	Denny, J. O	Denny's X Roads	Johnston's	" "	" " "	20
1883.							
Jan.	1	Nicholson, B. E	Ridge Spring	Ridge Spring	" "	" " "	20
"	1	Prescott, W. E	Edgefield	Trenton	" "	" " "	20
"	1	Adams, Thomas J	"	"	" "	" " "	20
"	1	Fallon, Burt	Rishe's Store	Leesville	" "	" " "	20
"	1	Long, Z. C	Trenton	Trenton	" "	" " "	20
"	1	Koon, W. S	Batesburg	Batesburg	" "	" " "	20
"	1	Mims, E. A	Johnston	Johnston	" "	" " "	20
"	1	Taylor, M. L	Lexington	Barr's Landing	" "	" " "	20
"	1	Cannon, Owen	Leesville	Leesville	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 1	Warren, W. D.	Johnston's	Johnston's.	By Express	By Express Agent.	20
“ 1	Johnson, L. S.	Edgefield.	“	“ “	“ “ “	20
“ 1	Smith, Mack	Batesburg	Batesburg	“ “	“ “ “	20
“ 1	Lown, J. F.	Lexington	Lexington.	“ “	“ “ “	20
1882.						
Nov. 30.	Barr, D. T.	Rocky Well	Leesville	“ Messenger	“ C. J. Huske	20
1883.						
Jan. 1	Holmes, Wyatt L.	Collins	Clark's Hill	“ Express	“ Express Agent.	20
1882.						
Nov. 30	Barr, W. C.	Rocky Well	Gilbert Hollow	“ Messenger	“ C. J. Huske	20
1883.						
Jan. 1	Quattlebaum, Gen. Paul	Leesville	Leesville	“ Express	“ Express Agent.	20
“ 1	Jumper, W. T.	Gilbert Hollow	“	“ “	“ “ “	20
“ 1	Quattlebaum, Thomas	Leesville.	“	“ “	“ “ “	20
“ 1	Harris, S. A.	Fort Mill	Fort Mill	“ “	“ “ “	20
“ 1	Rothrock, H. C.	Chester	Chester	“ “	“ “ “	20
“ 1	Morrison, Robt.	Rock Hill	Rock Hill	“ “	“ “ “	20
“ 1	Graham, Jno. A.	Chester	Chester	“ “	“ “ “	20
“ 1	Wise, L. S.	“	“	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 1	Stokes, J. B.	Chester	Chester	By Express	By Express Agent.	20
" 1	Wise, Alex.	"	"	" "	" " "	20
" 1	Lipsey, John A.	"	"	" "	" " "	20
" 1	McCants, Geo. B.	Winnsboro	Winnsboro	" "	" " "	20
" 1	McCulp, Wm.	Fort Mill	Fort Mill	" "	" " "	20
" 1	Smith, John G.	Chester	Chester	" "	" " "	20
" 1	Duff, J. C. H.	Clay Hill	Rock Hill	" "	" " "	20
" 1	Presley, Ira.	Chester	Chester	" "	" " "	20
" 1	White, M. E.	"	"	" "	" " "	20
" 1	Berry, Thos. N.	"	"	" "	" " "	20
" 1	Gladney, R. J.	Winnsboro	Winnsboro	" "	" " "	20
" 1	Anderson, C. D.	Rock Hill	Rock Hill	" "	" " "	20
" 1	Mitchell, T. P.	Blackstock	Blackstock	" "	" " "	20
" 1	Barnett, G. W.	Fort Lawn	Chester	" "	" " "	20
" 1	Garrison, Rev. J. M.	Fort Mill	Fort Mill	" "	" " "	20
" 1	Crook, R. L.	Rock Hill	Rock Hill	" "	" " "	20
" 1	Farris, B. M.	Fort Mill	Fort Mill	" "	" " "	20
" 1	Boyce, W. W.	Pineville, N. C.	Pineville, N. C.	" "	" " "	20
" 1	Farris, W. N.	Fort Mill	Fort Mill	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 1	Simonton, L. Robert	White Oak	White Oak	By Express	By Express Agent.	20
" 1	Atkinson, Dr. J. F	Richburg	Richburg	" "	" "	20
" 1	Draffin, W. H	Lancaster	Lancaster	" "	" "	20
" 1	Barber, O	Richburg	Richburg	" "	" "	20
" 1	Moffat, F. H	"	"	" "	" "	20
" 1	Denton, E. H	Waxhaw	Lancaster	" "	" "	20
" 1	McCain, John W	Walkersville	Lancaster	" "	" "	20
" 1	Hough, F. M	Fort Lawn	Chester	" "	" "	20
" 1	Foster, Dr. J. H	Lancaster	Lancaster	" "	" "	20
" 1	Crosby, A. B	Blairsville	Yorkville	" "	" "	20
" 1	Whitesides, J. G	Hopewell	Yorkville	" "	" "	20
" 1	Allison, Dr. J. W	Yorkville	Yorkville	" "	" "	20
" 1	Jones, D. D	Elloree	Lewisville	" "	" "	20
1882.						
Dec. 29	Brantly, E. W	Orangeburg	Orangeburg	" "	To Dr. A. M. Snider	20
1883.						
Jan. 1	Culler, C. W	"	"	" "	By Ex. Agent	20
" 1	Culler, W. W	"	"	" "	" "	20
" 1	Stoney, Theodore	Mt. Pleasant	Mt. Pleasant	" "	" "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	1	Buck, H. L	Port Harrelson	Charleston	By Express	By Express Agent.	20
Dec.	29	Snider, Dr. A. M	Elloree	St. Matthew's	“ “	To himself	20
“	29	Rush, D. H	St. Matthew's	“ “	“ “	To Dr. A. M. Snider	20
“	1	Reed, W. F	Boykin's	Boykin's	“ “	By Express Agent.	20
“	1	Johnson, W. C	Camden	Camden	“ “	“ “ “	20
“	1	Corbitt, B. A	Sawyerdale	Blackville	“ “	“ “ “	20
“	1	Salley, D. H	Williston	Williston	“ “	“ “ “	20
“	1	Satterthwait, S. C	Aiken	Aiken	“ “	“ “ “	20
“	1	Jones, W. B	Merritt's Bridge	“	“ “	“ “ “	20
“	1	Jones, H. W	“ “	“	“ “	“ “ “	20
“	1	Fox, Morgan	“ “	“	“ “	“ “ “	20
“	1	Tarrant, Rev. R. B	Graham's T. O.	Graham's T. O.	“ “	“ “ “	20
“	1	Rowe, D. J.	Bamberg	Bamberg	“ “	“ “ “	20
“	1	Humphries, J. C	Kitchen's Mills	Windsor	“ “	“ “ “	20
“	1	Courtney, R. L	Aiken	Aiken	“ “	“ “ “	20
“	1	Gunter, Lawson	“	“	“ “	“ “ “	20
“	1	Bardeen, H. M	“	“	“ “	“ “ “	20
“	1	Mathis, C. H	“	“	“ “	“ “ “	20
“	1	Corley, Benj. E	Windsor	Windsor	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 1	Bates, Jno. S	Eastover	Eastover	By Express	By Express Agent.	20
" 1	McRae, Jas	Carolina	Shoe Heel, N. C.	" "	" " "	20
" 1	Page, Jos. M	Page's Mills	Nichols	" "	" " "	20
" 1	Reid, Chas. C.	New Zion	Mayesville	" "	" " "	20
" 1	Gibbon, Captain P. M	New Zion	Mayesville	" "	" " "	20
" 1	Byrd, Dr. J. E	Timmonsville	Timmonsville	" "	" " "	20
" 1	Stuckey, A. B	Bishopville	"	" "	" " "	20
" 1	Durant, J. Oliver	"	"	" "	" " "	20
" 1	Schnied, J. E	Darlington	Darlington	" "	" " "	20
" 1	Flinn, J. D	"	"	" "	" " "	20
" 1	McIver, E. R	"	"	" "	" " "	20
" 1	Rogers, R. H	Palmetto	Palmetto	" "	" " "	20
" 3	Bush, Hon. J. H	Ellenton	Ellenton	" "	" " "	20
" 3	Caten, Thomas J	Baldoc	Baldoc	" "	" " "	20
Dec. 18	Connor, A. B	Allendale	Allendale	" "	" " "	20
Jan. 3	Williams, P. A	"	"	" "	" " "	20
" 3	Ellis, R. A	"	"	" "	" " "	20
" 3	Gray, J. M	"	"	" "	" " "	20
" 3	Williams, J. B	"	"	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	3	Brown, J. J	Allendale	Allendale	By Express	By Express Agent.	20
"	3	Mixon, J. S	"	"	" "	" " "	20
"	3	Weekley, John M	"	"	" "	" " "	20
"	3	McTeer, J. S	Early Branch	Early Branch	" "	" " "	20
"	3	Preston and Williams	Allendale	Allendale	" "	" " "	20
"	1	Burgess, Dr. James M	Greelyville.	Greelyville	" "	" " "	20
"	1	Woodrow, N. C	Effingham	Effingham	" "	" " "	20
"	3	Miller, Thomas E	Grahamville	Grahamville	" "	" " "	20
"	3	Stokes, B	Walterboro	Green Pond	" "	" " "	20
"	11	Rucker, R. D. P	Center Hill	Columbia		To Rucker	15
"	11	Wannamaker, J. C	" "	"		" "	15
1882.							
Dec.	21	Green, H	Columbia	"		" order	20
1883.							
Jan.	13	Klapman, W	"	"		" "	15
1882.							
Dec.	30	Kirby, J. T	"	"		" J. T. Kirby	20
"	1	Shull, S. P	"	"		" S. P. Shull	20
"	2	Shull, J. L	"	"		" Daniel Shull	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	3	Holmes, N. J	Laurens	Laurens	By Express	By Express Agent.	20
"	3	Aldrich, Alfred	Barnwell	Barnwell	" "	" " "	20
"	3	Murray, Hon. E. B	Anderson	Anderson	" "	" " "	20
"	3	Horton, Dr. O. R	Lowndesville	Abbevilie	" "	" " "	20
"	3	Hunter, Wm	McPherson's	Laurens	" "	" " "	20
"	3	Madden, Thomas	"	"	" "	" " "	20
"	3	Whorton, B. A	Lisbon	"	" "	" " "	20
"	3	Riley, O. B	Orangeburg	Orangeburg	" "	" " "	20
"	3	Hooker, J. O. A	"	"	" "	" " "	20
"	3	Harris, Moses	Trenton	Trenton	" "	" " "	20
"	3	Humphries, A. W	Merritsville	Greenville	" "	" " "	20
1882.							20
Dec.	4	Ruff, Jesse D	Columbia	Columbia		To Jesse D. Ruff	20
1883.							20
Jan.	3	Hurbert, J. A	Westminster	Westminster	By Express	By Express Agent.	20
"	3	Lewis, Thomas L	Seneca City	Seneca City	" "	" " "	20
"	3	Hunter, Samuel L	Westminster	Westminster	" "	" " "	20
"	3	Reams, F. S	Bishopville	Lynchburg	" "	" " "	20
"	3	Buckett, Dr. L. F	Clinton	Clinton	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.							
Jan.	4	Stultz, J. S.	Rock Hill	Rock Hill	By Express	By Express Agent.	20
“	3	Crotwell, Alfred	Newberry	Newberry	“ “	“ “ “	20
1882.							
Dec.	15	Alexander, Geo. O.	Millville	Spartanburg		To W. P. Hoy	20
1882.							
Jan.	3	Thacker, Rev. W. H.	Piedmont	Piedmont	By Express	By Express Agent.	20
“	3	Patton, Dr. John D.	Powers Shops	Laurens	“ “	“ “ “	20
“	3	Phillips, John N.	Bishopville	Lynchburg	“ “	“ “ “	20
“	3	Rice, H. W.	Lexington	Lexington	“ “	“ “ “	20
“	3	Boozer, J. J.	“	“	“ “	“ “ “	20
“	3	Sumter, T. T.	Stateburg	Stateburg	“ “	“ “ “	20
“	3	Harman, Henry E.	Lexington	Lexington	“ “	“ “ “	20
“	3	Posey, J. M.	Trenton	Trenton	“ “	“ “ “	20
“	3	Clark, W. A.	Ridge Spring	Ridge Spring	“ “	“ “ “	20
“	3	Bash, Henry	“ “	“ “	“ “	“ “ “	20
“	3	Scott, Winfield	“ “	“ “	“ “	“ “ “	20
“	4	Barnett, D. F.	Rock Hill	Rock Hill	“ “	“ “ “	20
“	3	Canville, J. R.	Johnston's	Johnston's	“ “	“ “ “	20
“	3	Hall, J. B.	Belton	Belton	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Jan. 5	Cowan, J. A.	Belton	Anderson	By Express	By Express Agent	20
" 5	Sullivan, J. F	Walhalla	Walhalla	" "	" " "	20
" 5	Miller, D. L	Fork Shoals	Greenville	" "	" " "	20
" 5	Walker, M. S	Edgefield	Trenton	" "	" " "	20
" 5	Briggs, David	Blackville	Blackville	" "	" " "	20
" 5	Garrett, J. C	Centerville	Laurens	" "	" " "	20
" 5	Hughston, T. E	Cedar Spring	Spartanburg	" "	" " "	20
" 5	Evans, Gus	Walhalla	Walhalla	" "	" " "	20
" 5	Brown, Wm	"	"	" "	" " "	20
" 5	Shanklin, J. B	Seneca City	Seneca City	" "	" " "	20
" 5	Bookhart, S. W	Blythewood	Blythewood	" "	" " "	20
" 5	Cox, J. B	Honea Path	Honea Path	" "	" " "	20
" 4	Ellison, R. E	Winnsboro	Winnsboro	" "	" " "	20
" 4	McCants, Geo. W	"	"	" "	" " "	20
" 4	Aiken, W. D	"	"	" "	" " "	20
" 5	Hain, J. M	Elko	Elko	" "	" " "	20
" 5	Goodgion, J. W	Goodgion's	Laurens	" "	" " "	20
" 5	Able, Dr. A. R	Rish's Store	Gilbert Hollow	" "	" " "	20
" 5	Thompson, L. C	Liberty Hill	Camden	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 5	Wilkins, T. O. L	Rantowle's	Rantowle's	By Express	By Express Agent	20
“ 5	Nix, Robt	Traveller's Rest	Greenville	“ “	“ “ “	20
“ 5	Broadwater, G. W	Edgefield	Trenton	“ “	“ “ “	20
“ 5	Hughs, Morgan L	Orangeburg	Orangeburg	“ “	“ “ “	20
“ 5	Mehaffy, S. B	Eden	Laurens	“ “	“ “ “	20
“ 5	Donald, N. Q. M	Carolina	Shoeheel	“ “	“ “ “	20
“ 5	Andrews, E. E	Newmarket	Newmarket	“ “	“ “ “	20
“ 5	Phillips, Nathaniel	Long Creek	Walhalla	“ “	“ “ “	20
“ 5	Thrift, W. H	“ “	“	“ “	“ “ “	20
“ 5	Lee, John	“ “	“	“ “	“ “ “	20
“ 5	Roach, Wm	“ “	“	“ “	“ “ “	20
“ 5	Bonner, Thos	Grassy Pond	Spartanburg	“ “	“ “ “	20
“ 5	Bohman, J. T	Rowesville	Orangeburg	“ “	“ “ “	20
“ 5	Stone, Henry	Prosperity	Prosperity	“ “	“ “ “	20
“ 5	Kizer, J. B	Reevesville	Reevesville	“ “	“ “ “	20
“ 4	Kimbrell, W. J	Fort Lawn	Chester	“ “	“ “ “	20
“ 5	Mobley, J. F	Johnston's	Johnston's	“ “	“ “ “	20
“ 4	Brice, Calvin	Woodward's	Woodward's	“ “	“ “ “	20
“ 5	Adair, J. M	Clinton	Clinton	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	5	Harrigal, J. G	Graniteville	Graniteville	By Express	By Express Agent	20
“	5	Black, D. L	Yorkville	Yorkville	“ “	“ “ “	20
Dec.	9	Workman, M. R	Rock Hill	Rock Hill		To Hon. J. C. Witherspoon	20
Jan.	5	Fowler, J. F	Pliney	Greenville	By Express	By Express Agent	20
“	5	Conner, L. S	Orangeburg	Orangeburg	“ “	“ “ “	20
“	5	Fribble, M. P	Anderson	Anderson	“ “	“ “ “	20
“	5	Feaster, Peter	“	“	“ “	“ “ “	20
“	5	Prince, H. M	Williamston	Gilbert Hollow	“ “	“ “ “	20
“	5	Cleveland, Jesse	Hart's Store	Greenville	“ “	“ “ “	20
“	5	Reill, J. H	Walhalla	Walhalla	“ “	“ “ “	20
1882.							
Nov.	29	Taylor, John	Columbia	Columbia		To himself	20
1883.							
Jan.	5	Bissell, Dr. H. E	Green Pond	Green Pond	“ “ “	By Express Agent	20
“	5	Fripp, E. Y	“ “	“ “	“ “ “	“ “ “	20
“	5	Smith, Will	Spartanburg	Spartanburg	“ “ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		NAME OE APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERD.	No. of Fish.
1882.							
Dec.	9	Hutcherson, J. P.	Rock Hill	Rock Hill	....	To Hon. J. C. Witherspoon	20
“	22	McCall, C. S.	Bennettsville.	Bennettsville.	....	To himself	20
1883.							
Jan.	8	Gregg, Col. Wm.	Summerville.	Summerville.	By Express	By Express Agent	15
“	15	Moore, Hon. John B.	Anderson	Anderson	“ “	“ “ “	15
“	15	Berry, W. R.	Easley	Easley	“ “	“ “ “	15
“	15	Callison, Jas.	Kirksey	Greenwood	“ “	“ “ “	15
“	19	Duncan, Col. D. P.	Union	Union	....	To himself	16
“	14	Harriss, Andrew	Williston	Williston	By Express	By Express Agent	20
“	14	McGee, G. W.	Belton	Belton	“ “	“ “ “	20
“	14	Woodward, Chitty	Montmorenci	Montmorenci	“ “	“ “ “	20
“	14	Durisoe, D. R.	Edgefield	Trenton	“ “	“ “ “	20
“	14	Langston, R. B.	Seneca	Seneca	“ “	“ “ “	20
“	14	Doyl, W. F.	Black's Station	Black's Station	“ “	“ “ “	20
“	14	Jordan, L. W.	Seneca	Seneca	“ “	“ “ “	20
“	14	Satterthwait, J. H.	Aiken	Aiken	“ “	“ “ “	20
“	16	Lucas, W. N.	Reeder's Store	Lexington.	“ “	“ “ “	20
“	16	Goodgions, J. C.	Goodgions Factory	Laurens	“ “	“ “ “	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Jan. 16	**Eleazer, J. M.**	**Spring Hill**	**Peak's Station**		**To himself**	**20**
" 14	Blalock, J. S	Martin's Depot	Martin's Depot	By Express	By Ex. Agent	20
" 14	Bell, R. Y. N	Clinton	Clinton	" "	" "	20
" 14	Taylor, Dr. E. T	"	"	" "	" "	20
" 16	Tuck, Jno. D. A	Shoally	Spartanburg	" "	" "	20
" 16	Garrison, W. D	Autun	Bird's Crossing	" "	" "	20
" 16	Whitton, Thos	Mine Creek	Johnston	" "	" "	20
" 14	Brodie, Mrs. C. J	Leesville	Leesville	" "	" "	20
" 14	Frost, Thos	Charleston	Charleston	" "	" "	20
" 14	Arnold, F. A	Greenwood	Greenwood	" "	" "	20
" 14	Wooton, Jno	Blythewood	Blythewood	" "	" "	20
" 14	Quattlebaum, Chas. A	Leesville	Leesville	" "	" "	20
" 15	Green, Geo. P	Columbia	Columbia		To order	20
" 14	Fanning, J. H	Blackville	Blackville	By Express	By Express Agent	20
" 14	Briggs, David	"	"	" "	" " "	20
" 14	Robinson, Jas. L	Due West	Donaldsonville	" "	" " "	20
" 16	Fields, Hon. W. T	Maynard	Easley	" "	" " "	20
" 14	Pieper, F. W	Walhalla	Walhalla	" "	" " "	20
" 14	Wade, R. J	Montmorenci	Montmorenci	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

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1883.						
Jan. 14	Markley, H. C.	Greenville	Greenville	By Express	By Express Agent.	20
" 14	Ried, W. M.	Mayesville	Mayesville	" "	" " "	20
" 14	Wood, W. T.	Greenville	Greenville.	" "	" " "	20
" 14	Black, Dr. J. G.	Black's Station	Black's Station	" "	" " "	20
" 14	Green, A. L.	Greenville	Greenville	" "	" " "	20
" 14	Gunter, Eldredge	Aiken.	Aiken	" "	" " "	20
" 14	Smith, Dr. W. W.	Williston	Williston	" "	" " "	20
" 14	Jennings, W. D.	Edgefield	Trenton	" "	" " "	20
" 14	Strickland, A. C.	Anderson	Anderson	" "	" " "	20
" 14	Ostendorf, J. H.	Walhalla	Walhalla	" "	" " "	20
" 14	Dickson, Jno. M.	Westminster	Westminster	" "	" " "	20
" 14	Durisoe & Co., D. R.	Edgefield	Trenton	" "	" " "	20
" 16	Vaun, W. C.	Sawyerdale	Aiken	" "	" " "	20
" 14	Kennedy, P. H.	Graham's T. O.	Graham's T. O.	" "	" " "	20
" 14	Taylor, E. F.	Clinton	Clinton	" "	" " "	20
" 16	Switzen, D. A.	Spartanburg	Spartanburg	" "	" " "	20
" 16	Blalock, L. W. C.	Martin's Depot	Martin's Depot	" "	" " "	20
" 16	Holman, M. K.	St. Matthew's	St. Matthew's	" "	" " "	20
" 16	Bates, Hon E. H.	Maynard	Easley	" "	" " "	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	16	Norman, J. D.	Greer's Station	Greer's Station	By Express	By Express Agent.	20
"	16	Benson, M. J.	" "	" "	" "	" " "	20
"	16	Benson, J. G.	" "	" "	" "	" " "	20
"	20	McRae, Jas.	Carolina	Shoe Heel	" "	" " "	15
"	16	Smorr, J. G.	Blaireville	Guthriesville	" "	" " "	20
"	16	Crosby, J. S.	"	"	" "	" " "	20
"	16	Livingston, G. H.	Sawyerville	Blackville	" "	" " "	20
"	16	McAlhaney, T. O.	St. George's	St. George's	" "	" " "	20
"	16	Benson, W. W.	Traveller's Rest	Greenville	" "	" " "	20
"	16	Buck, H. L.	Port Harrelson	Charleston	" "	" " "	20
"	16	McCain, John W.	Walkersville, N. C.	Lancaster	" "	" " "	15
"	14	Smith, L. W.	Trenton	Trenton	" "	" " "	20
"	14	Bragdon, J. W.	"	"	" "	" " "	20
"	14	Lepard, F. M.	"	"	" "	" " "	20
"	14	Wessell, F. W.	Aiken	Aiken	" "	" " "	20
"	13	Roof, James	Columbia	Columbia		To himself	20
"	13	Roof, Thos.	"	"		" "	20
"	13	Roof, Henry	"	"		" "	20
"	14	Whittle, M. Q.	Leesville	Leesville	By Express	By Express Agent.	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	14	Etheridge, Joe	Leesville	Leesville	By Express	By Ex. Agt	20
"	14	Cannon, Owen	"	"	" "	"	20
"	16	Antley, R. P	Jamison	Orangeburg	" "	"	20
"	16	Finley, C. G	Laurens	Laurens	" "	"	20
"	16	Pinson, A. W	"	"	" "	To C. G. Finley	20
"	16	Gunter, Weal	Aiken	Aiken		U. X. Gunter	20
"	16	Wells, Thomas	"	"	By Express	By Ex. Agt	20
"	16	Tuck, G. W	Shoaly	Spartanburg	" "	"	20
"	20	White, Willis E	Jacksonham	Lancaster	" "	"	15
"	13	Swaffield, W. C	Columbia	Columbia		To order	20
"	20	Smith, J. G	Marion	Marion	By Express	By Ex. Agt	15
"	13	Smith, E. B	"	"	" "	"	15
"	13	Heidt, W. G	Columbia	Columbia		To order	20
"	20	Sheriff, Exodus	Easley	Easley	By Express	By Ex. Agt	15
"	20	Crayton, Hon. B. F	Anderson	Anderson	" "	"	15
"	20	Keys, J. C	"	"	" "	"	15
"	20	Martin, R. G	"	"	" "	"	15
"	20	Dean, W. T	"	"	" "	"	15
"	20	Ott, W. F	St. Matthew's	St. Matthew's	" "	"	15

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1882 AND 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	20	Smith, Landon F	Cokesbury	Cokesbury	By Express	By Express Agent.	15
“	20	Anderson, G. D	McPherson's	Laurens	“ “	“ “ “	15
“	20	Sims, John G	“	“	“ “	“ “ “	15
“	20	Weathers, M. E	“	“	“ “	“ “ “	15
“	20	Ward, Clinton	Clintonward	Clintonward	“ “	“ “ “	15
“	19	Roche, E. L	Charleston	Charleston	“ “	“ “ “	15
“	20	Puckett, J. W. B	Westminster	Westminster	“ “	“ “ “	15
“	20	Ladshaw, T. D	Glendale	Spartanburg	“ “	“ “ “	15
“	20	Neighbors, T. B	“	“	“ “	“ “ “	15
“	20	Petrie, B. F	“	“	“ “	“ “ “	15
“	20	Ladshaw, Ed	“	“	“ “	“ “ “	15
“	20	Harman, R. A	“	“	“ “	“ “ “	15
“	20	Petrie, Ed	“	“	“ “	“ “ “	15
“	20	Ladshaw, D. F	“	“	“ “	“ “ “	15
“	20	Winn, Chas. W	Clintonward	Ward's	“ “	“ “ “	15
“	20	Cary, John C	Seneca City	Seneca City	“ “	“ “ “	15
“	20	Lucas, W. N	Reeder's Store	Lexington	“ “	“ “ “	20
“	20	Huiet, W. J	Johnston's	Johnston's	“ “	“ “ “	15
“	20	Wallace, M. A	Unionville	Union	“ “	“ “ “	15

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1882 and 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Jan.	13	Kyzer, M. L.	Barr's Landing	Barr's Landing	By Express	By Express Agent.	20
"	11	Mots, Geo.	Columbia	Columbia		To order	20
"	16	Bieman, D.	Walhalla	Walhalla	By Express	By Express Agent.	20
"	20	Hill, Dr. J. W.	Edgefield	Trenton	" "	" " "	15
"	20	Berkman, P. J.	Augusta, Ga.	Augusta, Ga.	" "	" " "	15

EXPOSITIONS.

During the past year invitations were extended the State to make exhibitions of her products at the Annual Fair of the New England Manufacturers' and Mechanics' Institute, Boston, and at the Southern Exposition, held at Louisville, Kentucky. These invitations were brought before the Board of Agriculture, and, after mature consideration, were declined, and the Commissioner of Agriculture directed to make the following replies to them:

"After a full consideration of the invitations to have the State represented at the Expositions to be held at Boston and Louisville, Kentucky, the Board of Agriculture decided that it was inexpedient at this time to accept either invitation. There are grave doubts as to the authority of the Board to expend money for such purposes; there is certainly no express authority in the Act creating the Department. But even if the authority exists for the expenditure by the Board of any sum for this purpose, it was thought that at present it would be inexpedient to do so. It was estimated that it would require at least $5,000 to enable the Board to make a proper representation of the resources of the State. The expenditures for the Parker Hall property and those which must be incurred in furnishing the laboratory and in the expenses of litigation in protecting the interests of the State in the phosphate deposits will draw heavily upon the funds under control of the Board and render it doubtful whether it will be possible to appropriate so large a sum as $5,000 for the purpose of securing representation of the State at either Exposition.

"In addition to these reasons, the Board felt that the State Chemist just elected should devote his entire time during the coming Summer to furnishing the Laboratory and making the necessary preparations for the important duties of his office, and that without his constant and active co-operation it would not be practicable to make a fitting representation of the geological and mineralogical resources of the State.

"Permit me to add that the Board appreciates fully the invitation offered for making known the resources of the State at the Expositions in Boston and Louisville, and that the members regret that, for the reasons given, they are compelled to decline to make an appropriation for this purpose."

In common with all the citizens of the State, the Board regretted sincerely their inability to take advantage of the opportunities offered for advertising the State, but it was a question with them whether they would abandon important litigation begun in the interest of the State and discontinue other work that had been begun for the benefit of the agriculturists of the State, or make the proposed exhibition. Feeling that more good was to be done by adopting the former course, and believing that other opportunities would be given for making an exhibit when we were better prepared to do it, the Board reluctantly accepted the alternative and declined the invitations. They regarded the advancement of the agricultural interests of our people as paramount to all other duties committed to their care and acted accordingly.

The most important Exposition ever held in the United States, so far as the South is concerned, will be held in 1884 at New Orleans. The following communication on this subject, addressed to the Governor of South Carolina, was referred to this Department:

STATE PARTICIPATION IN THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION.

Letter of Director General Burke to the Governors of the Various States.

NEW ORLEANS, ..., 1883.

GOVERNOR: I have the honor to transmit herewith, under seal of the World's Industrial and Cotton Centennial Exposition, a copy of the Act of Congress creating the Exposition, a copy of the proclamation of the President of the United States announcing the time of opening and closing the Exposition, and a copy of the general regulations. The last will be followed in due course by such further general or special regulations as may be found necessary.

* * * * * * * * * * *

The importance of this grand international event, the fact that it is a World's Exposition and under the immediate auspices of the United States Government, leads me to express the earnest hope that your Excellency will give early attention to the matter and take such action as will secure the active co-operation of your State and people.

In this connection, I beg further to express the hope that your Excellency will in due time recommend to the Legislature the appropriation of an amount sufficient to provide for a collective exhibit which will illustrate the natural and industrial resources of your State, and by this means help to swell the aggregate of an Exposition the importance of which to the material interests of the country cannot be over estimated.

I am, with respect,
Your Excellency's most obedient servant,
E. A. BURKE,
Director General.

The objects of this Exposition are so clearly set forth in the charter granted by Congress that it is given herewith in full:

CHARTER OF THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION, TO BE HELD AT NEW ORLEANS, 1884–'85.

An Act to Encourage the Holding of a World's Industrial and Cotton Centennial Exposition in the Year Eighteen Hundred and Eighty-four.

Whereas it is desirable to encourage for celebration the one hundredth anniversary of the production, manufacture and commerce of cotton, by holding, in the year eighteen hundred and eighty-four, in some city of the Union, to be selected by the Executive Committee of the National Cotton Planters' Association of America, an institution for the public welfare, incorporated under the laws of Mississippi, a World's Industrial and Cotton Centennial Exposition, to be held under the joint auspices of the United States, the said National Cotton Planters' Association of America, and of the city in which it may be located, and in which cotton in all its conditions of culture and manufacture will be the chief exhibit, but which is designed also to include all arts, manufactures and products of the soil and mine; and

Whereas such an exhibition should be national and international in its character, in which the people of this country and other parts of the world who are interested in the subject should participate, it should have the sanction of the Congress of the United States: Therefore,

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That a World's Industrial and Cotton Centennial Exposition be held in the year eighteen hundred and eighty-four, under the joint auspices of the United States Government, the National Cotton Planters' Association of America, and the city where it may be located.

SEC. 2. That the President of the United States may, upon the recommendation of the Executive Committee of the National Cotton Planters' Association of America, appoint six United States Commissioners, and upon the recommendation of the majority of subscribers to the enterprise in the city where it may be located may appoint seven United States Commissioners, who, together, shall constitute a Board of Management of said World's Industrial and Cotton Centennial Exposition.

SEC. 3. That the President of the United States may, on the recommendation of the Governors of the various States and Territories of the Union, appoint one Commissioner and one alternate Commissioner for each State and Territory, whose functions shall be defined by the said Board of Management.

Sec. 4. That all of said Commissioners shall be appointed within one year from the passage of this Act.

Sec. 5. That the said Board of Management shall hold its meetings in such city as may be selected for the location of the said Exposition by the National Cotton Planters' Association of America as aforesaid, and that a majority of said Board of Management shall have full power to make all needful rules and regulations for its government.

Sec. 6. That said Board of Management shall report to the President of the United States a suitable date for opening and closing the Exposition; a schedule of appropriate ceremonies for opening or dedicating the same; and such other matters as in their judgment may be deemed important.

Sec. 7. That no compensation for services shall be paid to the Commissioners or other officers provided by this Act from the Treasury of the United States; and the United States shall not be liable for any of the expenses attending such exhibition, or by reason of the same.

Sec. 8. That whenever the President shall be informed by the said Board of Management that provision has been made for suitable buildings, or the erection of the same, for the purposes of said Exposition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the Exposition will open, and the place at which it will be held, and such Board of Management shall communicate to the diplomatic representatives of all nations copies of the same and a copy of this Act, together with such regulations as may be adopted by said Board of Management, for publication in their respective countries.

Sec. 9. That the President be requested to send, in the name of the United States, invitations to the governments of other nations to be represented and take part in said World's Industrial and Cotton Centennial Exposition, to be held in some city of the United States, to be hereafter selected as aforesaid.

Sec. 10. That medals with appropriate devices, emblems and inscriptions, commemorative of said World's Industrial and Cotton Centennial Exposition, and of the awards to be made to exhibitors thereat, be prepared at some mint of the United States, for the said Board of Management, subject to the provisions of the fifty-second Section of the Coinage Act of eighteen hundred and seventy-three, upon the payment of a sum not less than the cost thereof; and all the provisions, whether penal or otherwise, of said Coinage Act against the counterfeiting or imitating of coins of the United States shall apply to the medals struck and issued under this Act.

Sec. 11. That all articles which shall be imported for the sole purpose of exhibition at the said World's Industrial and Cotton Centennial Exposition, to be held in the year 1884, shall be admitted without the payment of duty, or of customs fees or charges, under such regulations as the Secretary of the Treasury shall prescribe: *Provided*, That all such articles as shall be sold in the United States or withdrawn for consumption therein at any time after such importation shall be subject to the duties, if any are imposed, on like articles by the revenue laws in force at the date of importation: *And provided, further*, That in case any articles imported under the provisions of this Act shall be withdrawn for consumption, or shall be sold without payment of duty as required by law, all penalties prescribed by the revenue laws shall be applied and enforced against such articles, and against the persons who may be guilty of such withdrawal or sale.

Approved February 10, 1883.

We feel that every one will recognize the necessity of having South Carolina fully represented on this great occasion. All the Southern States are making active preparations to exhibit their products and show the advantages they offer to capitalists and immigrants. It will not do for our State to be omitted. The Department of Agriculture is charged with the duty of making exhibitions of this character, but it will be impossible to discharge this duty properly without the necessary money for the purpose.

As already explained, the only funds at the disposal of the Department is the tax on commercial fertilizers, and the sum that will be realized from this source cannot be known until the end of the fertilizer season. It is possible, therefore, that it might be out of the power of the Department to make the exhibit unless other provision is made that will leave no uncertainty about the matter. Under all the circumstances, the Commissioner respectfully recommends that the sum of $10,000 be appropriated for the purpose of securing the State's representation at this Exposition.

THE DEPARTMENT BUILDING.

The large brick building situated on Main street and known as Parker's Block has been purchased for the uses of this Department. The price paid was $15,000, $6,000 of which was paid in cash and the balance in two equal annual installments at seven per cent. per annum interest. It is being thoroughly repaired and renovated, at an estimated cost of $3,300, making the total cost of the building, including interest on deferred payments, $19,245. Considered simply as an investment, the transaction was a profitable one for the State, as the architect in charge of the repairs estimates the actual value of the building alone at $30,000, while the lot is not worth less than $5,000. The difference, therefore, in favor of the State, between the estimated value of the property and the amount paid for it, is $15,755.

But when the important uses to which the building is to be put are remembered, its value becomes far greater than can be estimated by the market price of the property.

The third floor of the building is to be used for a chemical laboratory under the charge of the State Chemist; the rooms on the second floor for the offices of the Department; and the splendid hall on the same floor, 98x35 feet, for an exhibition of mineral, agricultural and other specimens showing the resources and industries of the State. This will be equivalent to a perpetual Fair, and persons seeking information about our productions can examine them personally and learn more in an hour than they could by reading in years. This hall will also be used for meetings of the State Agricultural Society, the State Grange and Agricultural Conventions.

The first floor, covering 9,000 feet of space, will be used for the exhibition of improved agricultural implements of all kinds, from a garden hoe to a pulverizer, from every section of the country. Circulars explaining our purposes in this regard have been mailed to manufacturers of and dealers in agricultural machinery, and they have been requested to send specimens of their goods for exhibition. When this hall has been filled with reapers, mowers, ploughs, engines, &c., it will be the most attractive place in the city for farmers. Manufacturers have been notified that we will receive and place on exhibition any tool used by farmers, from them, on the following conditions: All freight charges from point of shipment to Columbia must be prepaid by the shipper. After the article has been placed in our hall the Commissioner of Agriculture will receipt for it and become responsible for its care until removed by order of the owner, and no charge whatever will be made for space occupied. Exhibitors will be allowed to put any advertisement they desire on their machines, and an employee of the Department will distribute any cards, pamphlets, &c., advertising the goods that may be sent for that purpose. No one connected with the Department will be allowed to act as agent for any exhibitor or to receive money for the purchase of any of the goods on exhibition, and parties desiring to purchase will be referred directly to the party exhibiting the machine. Our only object is to give the farmers an opportunity to inspect personally the various machines manufactured for use on the farm, believing that after such examination many who do not now use them will be induced to do so.

The basement of the building will be used by the Fish Commission. Tanks for keeping pond fish for distribution, and apparatus for hatching shad, trout, &c., will be built, and experiments in practical fish culture will be conducted under the Superintendent's supervision.

So that all the available space will be utilized for Department purposes.

PUBLICATIONS OF THE DEPARTMENT.

Since November 1st we have published and distributed 35,000 copies of Monthly Reports. The great bulk of these Reports are mailed to people in our own State, as they are published chiefly for the purpose of disseminating useful information among the agriculturists of South Carolina. As all information of this character should reach the farmer at the earliest moment in order that he may avail himself of it, if it is of practical value, we adopted this method of treating purely agricultural subjects, instead of withholding it for publication in our Annual Report, and the latter contains this year, with the exception of the statistical information, only a report of the operations of the Department.

The manuscript of the Hand Book, which is regarded by those who have examined the advance sheets as superior to any similar publication ever issued by the State, has been placed in the printers' hands by the compiler, and will be issued from the press in time to be presented to the Legislature during its present session. Five thousand copies have been ordered by the Board, and they will be distributed very rapidly, as there is an immense demand for such a publication.

The Department has published 1,000 maps in addition to those distributed in 1882, prepared by the compiler of the Hand Book, showing, in addition to the general features of the State, the localities in which minerals are found, the water powers as far as surveyed, the railroads projected and in operation, the cotton factories and the geological formations. The map is divided into Townships, the Township lines being clearly outlined. The coloring of the map is done in such a way as to show at a glance the relative white and colored population of any section of the State. As showing the good likely to result from this publication, the following extract is made from a letter received from a gentleman in Illinois to whom one of the maps had been sent: "The map is a valuable work and has given me a different idea of the resources of South Carolina from that I previously entertained, and I have taken some pains to learn about them. Even our well informed people have a very inadequate idea not only of your State but of its neighbors."

We have issued about 5,000 circulars relating to subjects committed to our care, and 5,000 copies of our Annual Report for 1882. The total of all the publications, including the Hand Book, is 46,000 copies.

FINANCIAL REPORT.

The statement published at the close of this Report exhibits the financial transactions of the Department for the past fiscal year. These expenditures have exceeded those of 1882, owing to the purchase and repair of the Agricultural Department building, the cost of fitting up a chemical laboratory and the phosphate litigation.

It will be noticed that the payment of salaries to the Commissioner of Agriculture, the Special Assistant, Clerk to the Commissioner of Agriculture and the Superintendent of Fisheries is reported for 13 months, which requires explanation. When the first financial report of the Department was made the Clerk was not familiar with the method pursued in the other State Departments, and only reported payments made *to* November 1st, and this did not include salaries for October, paid November 1st. The same rule was followed in 1881 and 1882. In order to conform to the rules of the other Departments, the officers and employees of this Department were paid their salaries for October this year on the 31st of October instead of November 1st; and having paid the salaries for October, 1882, on November 1st, 1882, these payments were excluded from the 1882 Report, and of course had to appear in the Report for 1883. This explains what might otherwise be regarded as the payment of salaries for thirteen months in one year.

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STATISTICAL INFORMATION.

The statistical work of the Department is confined to the collection of statistics through Township correspondents and the compilation of such data in the office of the Commissioner. The information collected in this way is as correct as it is possible to make it without an actual census, and its importance cannot be over estimated.

In order to have our statistical report as accurate as possible, we have sent out to correspondents inquiries asking a comparison of the area of the various crops compared with 1879, the census year, in addition to the usual comparison made with the preceding year. Besides this source of information, we propose to obtain from the owners of gins the number of bales of cotton ginned during the season. The returns from correspondents have come in so slowly that we have been unable to tabulate them in time for this Report, and the information to be obtained from ginners could not be gotten until the season is over. We are compelled, therefore, to omit this from the Report submitted to the Legislature, and give the estimates made from returns already received, with the explanation that they are subject to future revision.

COTTON.

The cotton area was increased 32,660 acres or two per cent. above last year, making the total of acres in this crop this year 1,441,983. Kershaw County shows the largest percentage of increase—9 per cent.,—followed closely by Newberry with an increased area of 8 per cent., and Hampton with 7 per cent., Horry 5 per cent., and Spartanburg and Lancaster 4 per cent. increase. Abbeville, Pickens, York and Marion each show an increase of 3 per cent. Anderson, Chester, Union, Chesterfield, Darlington, Fairfield, Lexington, Marlboro, Orangeburg, Sumter, Clarendon and Williamsburg have each increased 2 per cent., and Aiken and Edgefield 1 per cent. Greenville, Laurens, Oconee, Richland and Georgetown have made no change in area, while Colleton shows a decrease of 2 per cent., Barnwell 5 per cent., Berkeley and Charleston 6 per cent., and Beaufort 7 per cent. Abbeville County has the largest cotton area, 88,727 acres, and Georgetown the smallest, 362 acres.

CORN.

The corn area was practically unchanged, the returns showing an actual increase over last year of only 3,288 acres, making the whole area devoted to this crop this year 1,359,593 acres. Fairfield and Lexington show the largest percentage of increase, being 7 per cent. in excess of the area of 1882. Greenville follows next with an increase of 5 per cent.; Orangeburg, Berkeley and Charleston show an increase of 3 per cent.; Laurens, Oconee, Chesterfield, Edgefield and Beaufort 2 per cent.; York, Aiken, Marlboro, Sumter, Clarendon, Colleton, Marion and Newberry 1 per cent.; Anderson, Pickens, Kershaw, Richland, Georgetown, Horry and Williamsburg have made no changes in area. Darlington shows a decrease of 1 per cent., Barnwell 2 per cent., Chester and Spartanburg 3 per cent., Union and Hampton 5 per cent., Abbeville 7 per cent. and Lancaster 8 per cent.

The following table shows the number of acres under cultivation in cotton and corn in each County:

COUNTY.	COTTON.	CORN.
Abbeville	88,727	49,397
Anderson	64,087	51,252
Chester	53,236	40,833
Greenville	48,977	53,945
Laurens	61,629	47,805
Oconee	15,945	25,109
Pickens	21,963	29,506
Spartanburg	56,495	60,536
Union	50,267	40,453
York	62,139	53,374
	523,465	452,210
Aiken	35,893	54,907
Barnwell	78,334	95,991
Chesterfield	19,698	30,618
Darlington	62,105	52,490
Edgefield	85,992	63,646
Fairfield	74,722	38,784
Kershaw	40,271	23,642
Lancaster	38,133	22,043
Lexington	24,892	44,767
Marlboro	41,655	33,396
Newberry	66,744	34,688
Orangeburg	75,892	70,463
Richland	31,510	18,071
Sumter	65,725	53,442
	741,566	636,948
Beaufort	12,578	18,924
Berkeley Charleston	22,154	31,369
Clarendon	27,724	31,178
Colleton	13,828	49,696
Georgetown	372	4,389
Hampton	25,197	31,626
Horry	2,680	12,722
Marion	55,137	59,635
Williamsburg	17,292	30,896
	176,952	270,435

The average yield of cotton the present year is estimated at 130 pounds per acre. This would give the total yield for the State 187,457,790 pounds, against 279,437,156 pounds in 1882—a decrease of 91,979,366 pounds, or about 180,000 bales. This shows a decline of about 33 per cent. below last year.

The average yield of corn per acre is estimated at 8 bushels. This would give a total yield for the State of 20,876,744 bushels, against 17,045,735 bushels in 1882—a loss of 6,168,991 bushels, or about 35 per cent.

OATS.

The area in the oats crop of 1882–83 was 321,958 acres, against 362,373 acres crop of 1881–82—a decrease of 40,415 acres; and the yield of the crop for 1882–83 was 4,187,082 bushels, against 7,929,970 bushels crop of 1881–82—a decrease of 3,742,888 bushels.

WHEAT.

The area in the wheat crop of 1882–83 was 182,215 acres, against 201,815 acres in 1881–82—a decrease of 19,600 acres; and the yield of the crop of 1882–83 is 1,383,731 bushels, against 1,934,970 bushels in 1881–82—a decrease of 551,239 bushels.

The following table exhibits the area and yield of barley, oats, rye and wheat, crop of 1882–83, by Counties:

COUNTY.	BARLEY.		OATS.		RYE.		WHEAT.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
Abbeville . .	268	3,670	25,312	334,720	44	177	15,366	118,140
Aiken . . .	. . . .	. . .	4,808	99,280	342	1,710	6,262	49,342
Anderson . .	117	1,793	18,037	252,728	220	574	19,449	140,390
Barnwell . .	. . .	. . .	12,557	174,577	1,079	5,746	3,403	24,707
Beaufort . .	. . .	. . .	217	5,395				
Charleston. .	. . .	. . .	3,511	70,950	37	222	20	160
Chester . . .	. . .	. . .	13,508	162,189	241	1,133	8,264	56,052
Chesterfield .	. . .	. . .	5,007	61,881	198	1,544	2,647	23,579
Clarendon. .	. . .	. . .	2,916	50,364	29	87	125	581
Colleton. . .	86	1.290	17,319	126,796	125	625	186	1,416
Darlington .	. . .	. . .	9,983	140,315	571	2,525	2,295	5,855
Edgefield . .	75	820	44,740	517.363	59	354	11,899	83,641
Fairfield. . .	5	75	8,820	139,689	80	364	4,273	32,246
Georgetown .	9	180	226	5,036				
Greenville. .	49	780	10,330	137,011	596	3,380	12,508	100,492
Hampton . .	. . .	. . .	6,204	57,051	109	436	23	230
Horry. . . .	. . .	. . .	182	1,820	20	100		
Kershaw . .	33	660	3,152	37,792	155	785	1,472	8,541
Lancaster . .	20	500	6,735	93,619	39	234	3,733	33,017
Laurens. . .	239	3,574	18,241	181,544	58	270	10,714	100,301
Lexington. .	. . .	. . .	10,385	119,866	63	189	12,371	88,672
Marion . . .	. . .	. . .	9,121	121,459	830	4,160	1,020	9,998
Marlboro . .	. . .	. . .	4,394	52.789	213	1,062	2,291	19,052
Newberry . .	60	987	16,457	232,145	14	56	8,861	70,773
Oconee . . .	16	240	4,856	64,853	788	4,608	4,564	32,374
Orangeburg .	. . .	. . .	11,933	168,728	431	1,656	3,391	25,272
Pickens . . .	12	180	3,171	45,377	222	1,197	5,518	41,455
Richland . .	. . .	. . .	2,847	35,766	5	15	441	2,720
Spartanburg .	9	81	13,111	189,784	95	565	16,268	96,952
Sumter . . .	13	300	6.411	82,117	111	684	441	2,738
Union . . .	94	1,504	7,367	115,041	42	330	8,113	63,960
Williamsburg	10	110	1,492	22,066	33	223	72	798
York	66	462	18,608	286,971	397	2,738	16,225	150,277
Total . .	1,181	17,206	321,958	4,187.082	7,246	37,749	182,215	1,383,731

The area and yield of the other crops cultivated in the State will be given more in detail in the future Reports, but the following estimates, published in the Monthly Reports of the Department, furnish a general statement that serves as a comparison with the area as planted in these crops in 1882:

Returns from County and Township correspondents show that in Northern Carolina the area in rice is the same in 1883 as in 1882. In Middle Carolina the area has been reduced 2 per cent. below 1882. In Lower Carolina the area is reduced 3 per cent. below last year. Beaufort, Charleston, Colleton and Georgetown Counties, that embraced more than 65 per cent. of the area in rice in 1882, show an average decreased acreage of 3 per cent. Aiken County shows the largest percentage of increase in area, 5 per cent., and Georgetown the greatest decrease, 12 per cent.

The acreage in sugar cane has been decreased 4 per cent. Sorghum also shows a decrease of 1 per cent. in area. The acreage in tobacco has been reduced 4 per cent.

The average wages paid farm hands per month in Northern Carolina is $8.61 and board or rations, and the efficiency of hired labor as compared with last year is 98; in Middle Carolina the average wages is $8.14 and efficiency 96; and in Lower Carolina the average wages is $9.28 and efficiency 92. It will be observed that the highest wages paid is in Lower Carolina, while hired labor is reported more efficient in Northern Carolina.

The returns show a decrease in amount of supplies purchased this season compared to last year; in Northern Carolina of 31 per cent., and 67 per cent. of this amount is bought on time. In Middle Carolina the amount purchased is 29 per cent. below last year and 74 per cent. is bought on time. In Lower Carolina the amount purchased is 21 per cent. below last year and 72 per cent. bought on time.

These estimates show that only 73 per cent. of the amount of farm supplies purchased last year has been bought this year.

The following statements from the Monthly Reports of the Department show the

NUMBER AND CONDITION OF LIVE STOCK IN THE STATE.

The Northern Counties show a decrease of 4 per cent. in the drop of lambs below 1882, the Middle Counties 7 per cent. decrease and the Lower Counties 8 per cent. The amount of wool clipped is 7 per cent. below last year for the whole State, and in the Northern Counties there is a decrease of 4 per cent. in the total number of sheep of all sizes, and in the Middle Counties 9 per cent. and the lower Counties 14 per cent.

The condition of cattle is reported in Northern Carolina at 10 per cent.

above last year, in Middle Carolina at 9 per cent. and in Lower Carolina at 3 per cent.

The number of milch cows has decreased 3 per cent. in the Northern Counties, 8 per cent. in the Middle Counties and 15 per cent. in the Lower Counties, and the number of all other cattle has decreased in Northern Carolina 5 per cent., in Middle Carolina 19 per cent. and in Lower Carolina 15 per cent.

There is a marked improvement in the condition and a large increase in number of work stock—the Northern Counties showing an improvement of 15 per cent. over last year, the Middle Counties 12 per cent., and the Lower Counties 6 per cent., while the Northern Counties have increased the number of work stock 3 per cent., the Middle Counties 6 per cent. and the Lower Counties 2 per cent.

The Northern Counties have increased the number of stock hogs 10 per cent., the Middle Counties have decreased 2 per cent. and the Lower Counties 9 per cent.

Pickens, Aiken and Newberry are the only Counties that show any increase in sheep, while all except five others show a decrease.

Greenville, Union, Edgefield, Charleston and Horry Counties show an increase in the number of milch cows. Anderson and 'Oconee report the same number as last year, and all other Counties show a decrease. Anderson, Greenville, Oconee, Newberry, Charleston and Horry Counties have increased in the number of all other cattle, and the balance of the Counties have decreased.

Hampton County shows the largest increase in the number of work stock, 11 per cent., and Horry has increased 10 per cent., Barnwell, Chesterfield and Beaufort 9 per cent., Williamsburg 8 per cent., York, Fairfield and Newberry 7 per cent., Chester, Pickens, Darlington, Kershaw and Richland 6 per cent., Anderson, Sumter and Colleton 5 per cent., Spartanburg, Aiken and Edgefield 4 per cent., Abbeville and Oconee 3 per cent., Marion 2 per cent., and Laurens, Marlboro and Orangeburg 1 per cent. Greenville and Charleston report the same number as for 1882. Union shows a decrease of 1 per cent., Georgetown 4 per cent., Berkeley 6 per cent., and Clarendon 7 per cent.

Last year only four Counties showed an increase in the number of stock hogs over the previous year, and only one County then showed an increase of 6 per cent., two of 2 per cent. and one of 1 per cent., while this year sixteen Counties show an increase ranging from 3 per cent. to 18 per cent.

This is a very favorable and encouraging sign, and it shows a determination on the part of the farmers to raise the meat they need for home consumption.

The returns now being tabulated will show all of the foregoing statements by Counties, and in such other detail as will be necessary to make them of more practical value than they are when only given generally.

While the yield of the crops of the present year was greatly reduced by unfavorable seasons, in our opinion the farmers are in a far more prosperous condition than they were after the severe drought and failure of crops in 1881. The splendid grain crop of 1882, and the equally good crop of cotton, relieved the farmers of much of the embarrassment caused by the losses of the previous year, and they have been enabled to make the crops of 1883 with less encumbrances than for several years; and, therefore, while the yield of the present crop has been reduced greatly below expectations, it has been produced freer of debt than usual. Many farmers have a small surplus of corn made in 1882, and this, with the crop made this year on bottom lands, will enable them to get through until oats are harvested without being compelled to buy corn. We are of the opinion, then, that the farming interests of the State, while suffering from the injuries to the crop of this year, is on a sounder financial basis than for several years.

CONCLUSION.

In conclusion, your Excellency will permit me to tender my thanks to yourself and to each member of the Board for uniform courtesies extended me, and for the advice and direction given me, by which I have been enabled to discharge the duties of Commissioner.

I have the honor to be

Your Excellency's obedient servant,
A. P. BUTLER,
Commissioner of Agriculture.

SUMMARY OF COLLECTIONS AND DISBURSEMENTS BY A. P. BUTLER, COMMISSIONER OF AGRICULTURE, F

COLLECTIONS.			DISBURSEMENTS.
*Collected and paid State Treasurer, privilege tax on Commercial Fertilizers	$ 25,092	30	Immigration Bureau
*Collected and paid State Treasurer refund of immigrant tickets	468	05	Paid E. M. Boykin, Superintendent, salary $150 per month
*Received from sale of State maps and paid State Treasurer	19	50	Paid Assistant to Superintendent, two mor month
Cash in hand Clerk of Department, October 31st, 1882	3	59	Paid Immigration tickets
Cash in State Treasury, October 31, 1882	16,597	26	Paid costs in legal suits
Amount over paid sundry expenses by Clerk of Department	14	61	Paid sundry expenses—rent Immigrants' medical attendance, printing, postage, &
			Paid transportation of immigrants
			Paid board of immigrants
			Phosphate Department
			Paid E. L. Roche, Special Assistant, salary (
			Paid E. L. Roche, Special Assistant, salary $100
			Paid E. L. Roche, Special Assistant, salary $150 per month
			Paid office rent, traveling expenses and post sistant 13 months
			Paid stationery Special Assistant's office
			Paid attorneys' fees in phosphate suits
			Paid surveys phosphate territory
			Paid hire steamer for annual inspection p'
			Pa [illegible] diem compensa

Russell

			Seed for distribution
			Advertising
			Expenses Committee from N. E. and M. In
			Stationery and books
			Two stoves for Department building
			Specimens for Atlanta Exposition
			Annual rent of telephone
			Express charges
			Porter
			Freight and hauling
			Sundries
			Work at Department building
			Stenographic report of proceedings of the S Society
			Specimens
			Ice
			Cash in State Treasury November 1st, 188
		$ 42,195 31	

*Itemized statements published in Comptroller General's Report.

Russell

FIFTH ANNUAL REPORT

OF THE

COMMISSIONER OF AGRICULTURE

OF

SOUTH CAROLINA,

FOR THE

FISCAL YEAR ENDING OCTOBER 31, 1884.

COLUMBIA, S. C.
CHARLES A. CALVO, JR., STATE PRINTER.
1884.

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REPORT.

OFFICE OF COMMISSIONER OF AGRICULTURE,
COLUMBIA, S. C., November 1, 1884.

To Governor HUGH S. THOMPSON, *Chairman of the Board of Agriculture.*

SIR: I have the honor to submit the Fifth Annual Report of the Department of Agriculture, embracing the reports of the Commissioner, the Chemist, the Special Assistant and the Superintendent of Fisheries.

There has been no change in the organization of the Department since the last Annual Report.

We have collected from manufacturers, dealers and agents of commercial fertilizers in this State, for the year ending November 1st, 1884, $25,262.16. This sum represents the entire amount paid for the privilege of selling these goods in South Carolina, and the amount derived from this tax is used exclusively for the use and benefit of the Department. The whole amount collected was paid into the State Treasury, as will appear from financial statements at close of this Report, and also from reports made to the Comptroller General.

The laws regulating the sale of fertilizers in South Carolina are not perfect in every respect, but they afford ample protection to the consumer, and the Secretary of the National Fertilizer Association says that our laws are more satisfactory to dealers than those of any other State.

The following were the regulations governing the sales of fertilizers in South Carolina for the season 1883-84:

[*Circular No.* 13.]

1. All persons or companies engaged in the manufacture or sale of commercial manures are required to pay to the Commissioner of Agriculture twenty-five cents per ton on every ton of such commercial fertilizer sold or offered for sale in South Carolina.

2. Every bag, barrel or other package of such fertilizers or commercial manures shall have thereon a plainly printed label or stamp, which shall truly set forth the name, location and trade mark of the manufacturer; also the chemical composition of the contents of such package and the real percentage of any of the following ingredients asserted to

be present, to wit: Soluble and precipitated phosphoric acid, soluble potassa, ammonia or its equivalent in nitrogen, together with the *date of its analysis*, and that the privilege tax has been paid.

3. All chemical compounds sold or offered for sale, including burnt marl, kainit, ground bone, fish scrap and Peruvian guanos, are subject to the payment of the privilege tax.

4. Only the privilege tax tags issued by this Department are recognized as evidence of the payment of the tax.

5. Applications for tags should be made to the Commissioner of Agriculture, accompanied by the amount of tax and the name of the manufacturer of the fertilizer, where manufactured, the brand of the fertilizer for which they are to be used and the guaranteed composition of the same, together with the number of bags, barrels or packages to the ton. (If the fertilizer for which tags are desired has been imported, the name and location of the importer must be given.) Manufacturers and dealers are prohibited from using the tax tags on any brand of fertilizer unless this rule, as well as all others regulating sales, has been strictly complied with.

6. *The practice permitted during the last season of branding on the packages both a minimum percentage and a maximum percentage (not more than twenty five per cent. (25 per cent.) greater than the minimum) will not be allowed during the present season. Any goods not coming up to the guarantee on the bags are liable to seizure and condemnation, and manufacturers and dealers are warned that no allowances will be made for differences in analytical results. It is not allowed to brand on the packages the words "and more," or other words of the same purport, after the guaranteed percentages. The analysis branded on the package must correspond with the guaranteed analysis filed in the Commissioner's office. [See below Section 13.] No tags will be furnished companies or dealers violating any of the above provisions.*

7. All railroad companies and other common carriers are prohibited from *delivering* any commercial fertilizer that does not bear the prescribed tag, showing that the tax has been paid. This does not apply to the delivery by railroads to their *connections*, but to its delivery at points of final destination to guano agents or other consignees.

8. The samples of fertilizers to be analyzed by the Chemist of this Department will be drawn by an agent appointed by the Department from any lot sold or offered for sale and at any point in the State.

9. The tags furnished by the Department are simply evidence that the *tax has been paid*, and manufacturers and dealers are prohibited from printing the brand of fertilizer, analysis or any other matter on them.

10. Any merchant, trader, manufacturer, agent or person who shall sell or offer for sale, or deliver after sale, or *receive*, any commercial fer-

tilizer without having the labels and stamps prescribed by law, shall be liable to a fine of ten dollars for each separate bag, barrel or other package sold or offered for sale, to be sued for before any Trial Justice.

11. All persons are warned against purchasing or receiving fertilizers or commercial manures that do not bear the privilege tax tag of this Department and the other labels and stamps provided by law.

12. Manufacturers and dealers are requested to send the guaranteed analyses, &c., to be filed in this office, on a separate sheet of paper from their letters or applications for tags, *and certified to by the manufacturer*, as follows:

13. FORM 1.

...., 188.........

A. P. Butler, *Commissioner of Agriculture, Columbia, S. C.*

Dear Sir: Below please find guaranteed analyses of our brands of fertilizers which we propose to sell in South Carolina during the season of 1883–84. We certify that the *name, location* and *trade mark* of the *manufacturer*, also the chemical composition of the contents of each package of Fertilizer, and the *real percentage* of Soluble and Precipitated Phosphoric Acid, Soluble Potassa and Ammonia, is branded on each and every package of the same, in accordance with Section 596, General Statutes South Carolina, and that the guaranteed analyses given herewith are exact transcripts from the packages.

Respectfully,

....

Brand of Fertilizers.	By Whom Manufactured.	Where Manufactured.	Guaranteed Analysis.		
			Soluble and Precipitated Phosphoric Acid.	Soluble Potassa.	Ammonia.

Manufacturers, dealers, agents and other applicants for privilege tax tags are requested to note that no tags will be furnished for use on any brand of fertilizer until the above form, properly filled out, has been filed in the office of the Commissioner of Agriculture at Columbia, S. C. Blank forms can be procured from this office.

14. Privilege tax tags cannot be used upon any other brand of fertilizer than that for which they were purchased. Where parties are handling a number of brands, the guaranteed analysis, &c., of all the brands can be filed at the same time, and tags purchased at the time or subsequently during the season can be used on either of those brands, but it

is a violation of the Regulations to use these tags on any brand until Rule 5 has been fully complied with.

Some changes may be made in the Regulations governing the sales of fertilizers during the present season. If so, notice of the same will be given through the monthly bulletins of the Department or in such other manner as may be deemed necessary.

Manufacturers are requested to inform the Commissioner as early as possible where samples of their goods can be obtained, in order to facilitate the analyses of the present season.

Very respectfully,

A. P. BUTLER,
Commissioner of Agriculture.

Agents of the Department visited various portions of the State during the fertilizer season and secured samples of a large number of the brands on sale, for analysis. The methods pursued in drawing these samples have been so fully explained in former Reports that it is deemed unnecessary to repeat them here. The analyses of these samples appear in the report of the Chemist of the Department.

A sample drawn from a lot at one point in the State was found to be deficient in some of the ingredients claimed. Upon examination of the matter it was found that the manufacturer's agent had filled a small number of sacks with the scrapings from his warehouse floor for use on his own farm, and carelessly left them near the goods he had on sale. Our Inspector called during his absence, and the agent's clerk, who was ignorant of the contents of the sacks, pointed them out to our Inspector as goods that were on sale. The usual sample was taken and forwarded to the Department and resulted as already stated. The matter is mentioned here for two reasons: to show that the Department is exercising due vigilance, and to caution all dealers against such carelessness. If any part of these scrapings had been sold, almost irreparable damage would have been done the manufacturer whose name appeared on the sacks, and great injury would have been inflicted upon the farmer who purchased.

The analyses of three samples of Stono Soluble Guano, drawn in different places in the State, showed uniformly lower results than the guaranteed analysis. These facts were reported to the Board of Agriculture, and the Commissioner was directed to refer the whole matter to the Attorney General for his advice. In reply the Attorney General filed the following opinion:

CHARLESTON, S. C., 3d November, 1884.

Hon. A. P. BUTLER, *Commissioner Agriculture, Columbia, S. C.*

DEAR SIR: I have received yours of 25th October. Upon receipt of your communication in June last, calling my attention to the discrepancy between the "guaranteed analysis" of the Stono Phosphate Company and the actual analysis by the State Chemist of samples of the fertilizers sold by said company, and asking my advice as to the action to be taken by the Commissioner and Department of Agriculture, I conferred with Dr. Allard Memminger, the Chemist, and Mr. William Ravenel, the President of the Stono Phosphate Company. I enclose you letters addressed to me by these officers, in reply. They claim that the discrepancy to which attention is called is not due to any deficiency or defect in the ingredients used in the manufacture of the fertilizers or their proper proportion, and that the company could therefore have no motive for such difference; that to whatever causes such difference may be attributed, they were not known to the agents of the company who shipped the fertilizers, and that such result is wholly contrary to the wish and intention of the company. Attention is also called to the variation in the determination of available phosphoric acid among chemists of acknowledged reputation, and to the fact that the Convention of Chemists which met at Atlanta in May last, in view of this, have suggested a method of analysis to be used for the coming season which it is hoped will lead to more uniform results.

The statements and assurances of the President and Chemist of the Stono Company, as to the manufacture of their fertilizers for the next season, are such as to make it reasonably certain that there will be no just ground of complaint either by the consumers or the Department. Under Section 596 of G. S., any fertilizers ascertained by analysis not to contain the ingredients and percentage, as provided by law, shall be liable to seizure and condemnation and sale; and it would be now very difficult, if not impracticable, to enforce the provisions of this Section as to fertilizers sold by the Stono Phosphate Company last season.

In view of all these considerations, and the assurances given as to the future, I cannot advise the Commissioner or Department of Agriculture to take any action in relation to the fertilizers of the Stono Phosphate Company in the past.

Respectfully,

CH. RICHARDSON MILES,

Attorney General.

The following are the letters referred to by Attorney General Miles, and are submitted in justice to the company and as a part of the records in the case:

CHARLESTON, S. C., May 20th, 1884.

Hon. C. RICHARDSON MILES, *Attorney General South Carolina.*

DEAR SIR: In accordance with your request, I herewith state the points which in our conversation this morning I wish to draw your attention:

1st. That I do not in any way challenge the analysis of the State, as I myself only contend the fertilizer to contain 7 per cent. available phosphoric acid.

2d. I consider that this difference of 1 per cent. is due not to any attempt on the manufacturers' part to defraud the farmer, but simply from the lack of time for the sulphuric acid to entirely decompose the phosphate rock.

3d. To substantiate this position, I can only state that the right amount of acid has been added this past season to produce 8 per cent. available phosphoric acid. But the reason it did not show this in my analysis was on account, as before said, of not time enough being allowed between the time of making and time of shipment.

4th. The proper proportions of first class rock has always been added, and this is found from the amount of total phosphoric acid being over and above the amount claimed.

5th. The amount of ammonia found by me is 3 per cent., and as this is all I claim, I consider that the State analysis has given us too much, as we never put it in.

6th. All the materials used in the manufacture of the Stono fertilizers have all been during the season rigidly analyzed by me and have all been of high and good quality.

7th. The variation on available phosphoric acid among the best chemists at present is at least 5 per cent. Now, White of Georgia gives us 8 per cent., and Dabney of North Carolina 7.50 per cent. So allowing Dabney this 5 per cent. will bring this up to 8 per cent.

8th. The number of analyses made by me the past season for the Stono Company is so large that I can assure the Department that first class materials have been used in the manufacture of the fertilizers, and though there is, as before said, a falling off of 1 per cent. even by my own analysis, I think the State might in a measure deal with leniency since their Chemist gives us a half per cent. more ammonia than claimed. The fertilizer, let me again repeat, does not fall off from any want in first class materials used and sufficient amount of acid, as both of them I can assure you of, but simply occurs from a too quick shipment of the goods.

9th. The Convention of Chemists which met on the 15th of this month at Atlanta, Georgia, found the necessity of a more uniform method in the analysis of fertilizers, and especially as regards *available* phosphoric acid. It was then shown that discrepencies of from 1 to 3 per cent. in available phosphoric acid was not at all uncommon, and the chemists comprising the Convention felt so the necessity of a more uniform method of analysis, that they advanced for the coming season a provisional method which they hoped would produce more uniform results.

I remain, very respectfully and truly yours,

ALLARD MEMMINGER.

STONO PHOSPHATE COMPANY,
CHARLESTON, S. C., June 25, 1884.

Hon. C. R. MILES, *Attorney General.*

DEAR SIR: I have the honor of receiving your letter of 24th inst., covering communications from Department of Agriculture in the matter of the analysis of the Stono fertilizer. It is a matter of deep regret to me that this company should have incurred the criticism of the Department of Agriculture. We spare no effort to secure not only a good fertilizer in all of our brands, but also to meet all the requirements of the law. We have as our Chemist Dr. Allard Memminger, whose skill and learning and character are so well known and appreciated. He gives to our product the most careful attention. He visits our works frequently and constantly repeats his analyses. Our by-laws give him absolute control in this department, and he acts with full sense of his responsibility. All the ingredients called for in our formula are used, and are of the best material. We spare no expense, and can have no motive for the difference between what we claim to be our brands and that which may appear as the result of the analysis of the State Chemist—so that this difference results from causes not known to the agent of the company who shipped the goods, and wholly contrary to its wish and intention. The subject matter of your letter has been submitted to and has been discussed with Dr. Memminger. He has given such directions as in his judgment and my own will in the future prevent any ground of exception whatever. It will be most disagreeable for us to come into conflict with the Department. I trust that the Commissioner and the State Chemist will understand that when the fertilizer was sent out by the company it was with the full conviction that it came fully up to the analyses represented; that if it be not up to this analyses, neither the company nor any of its agents intended this, and I hope that in the future there will be no reason to complain of us.

Thanking you for your courteous letter, I remain,

Yours, very respectfully,
WILLIAM RAVENEL,
President Stono Phosphate Company.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.

Brand of Fertilizer.	Name of Manufacturer.	Location of Factory.
Acid Mixture	Edisto Phos. Co	Charleston, S. C.
Acid Phosphate	Ashley Phos. Co	Charleston, S. C.
Acid Phosphate	Etiwan Phos. Co	Charleston, S. C.
Acid Phosphate	Wando Phos. Co	Charleston, S. C.
Acid Phos. (Pelican)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Palmetto)	Ashepoo Phos. Co.	Charleston, S. C.
Acid Phos. (Ga. State Grange)	Port Royal Fertz. Co	Port Royal, S. C.
Acid Phos. (Navassa)	Navassa Guano Co	Wilmington, N. C.
Acid Phos. (Zell's Cot.)	P. Zell & Sons	Baltimore, Md.
Acid Phos	Georgia Chemical Works	Augusta, Ga.
Acid Phos. (Cranston's)	Hume Bros. & Co	Beaufort, S. C.
Acid Phos. (Pomona)	Imported by Perry M. DeLeon	New York.
Acid Phos. (Hyman & Dancy's High Grade)	Hyman & Dancy	Norfolk, Va.
Acid Phos. (Edisto)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Cotton Brand High Grade)	Chas. E. Smith & Co	Wilmington, N. C.
Acid Phos. (High Grade)	Baugh & Sons	Philadelphia, Pa.
Acid Phos. (for Cotton)	W. B. Seal	Baltimore, Md.
Acid Phos	Raisin Fertz. Co	Baltimore, Md.
Acid Phos	John Merryman & Co	Mantua Creek, N. J.
Acid Phos	Ashepoo Co	Charleston, S. C.
Acid Phos. (Eutaw)	Ashepoo Co	Charleston, S. C.
Acid Phos. (Excellenza)	Long & Dugdale	Baltimore, Md.
Acid Phos. (Planter's Favorite)	Long & Dugdale	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Acid Phos. (Inman's)	Edisto Phos. Co.	Charleston, S. C.
Acid Phos	Atlantic Phos. Co.	Charleston, S. C.
Acid Phos	Georgia Chemical Works	Augusta, Ga.
Acid Phos. (Middleton's High Grade)	J. I. Middleton & Co.	Baltimore, Md.
Acid Phos. (McGee & Son)	Edisto Phos. Co	Charleston, S. C.
Acid Phos	Stono Phos. Co	Charleston, S. C.
Acid Phos. (Crayton & Sons)	Edisto Phosphate Co	Charleston, S. C.
Acid Phos. (Diamond)	Edisto Phosphate Co	Charleston, S. C.
Acid Phos. (Hammond's Diamond)	Edisto Phosphate Co	Charleston, S. C.
Acid Phos	Patapsco Guano Co	Baltimore, Md.
Acid Phos. (South Sea)	J. W. Harle & Co	Atlanta, Ga.
Acid Phos. (Paragon)	Long & Dugdale	Baltimore, Md.
Acid Phos	J. I. Middleton & Co	Baltimore, Md.
Acid Phos	Navassa Guano Co	Wilmington, N. C.
Acid Phos	Russell Coe	Linden, N. J.
Acid Phos. (Wagener's)	Edisto Phosphate Co	Charleston, S. C.
Acid Phos	J. I. Middleton & Co	Baltimore, Md.
Acid Phos. (L. A. Mills' Standard)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Zell's Cotton)	Zell Guano Co.	Baltimore, Md.
Acid Phos. (Port Royal)	Hammond, Hull & Co	Port Royal, S. C.
Acid Phos. (Oglethorpe)	Hammond, Hull & Co	Port Royal, S. C.
Acid Phos	Baldwin & Co	Port Royal, S. C.
Acid Phos	Charleston Phos. Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Acid Phos. (Excellenza)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Lockwood's)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Huiet's Alkaline)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (The Trade Mark)	Lorentz & Rittler	Baltimore, Md.
Acid Phos. (W. F. Barr's)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Amazon)	Edisto Phos. Co	Charleston, S. C.
Acid Phos	Hume Brothers & Co	Port Royal, S. C.
Acid Phos	Rasin Fertz. Co	Baltimore, Md.
Acid Phos. (Royster's High Grade)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Cotton Braud)	E. J. Powers	Wilmington, N. C.
Acid Phos. (Taylor's)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Pelzer)	Atlantic Phos. Co	Charleston, S. C.
Acid Phos	Chesapeake Guano Co	Baltimore, Md.
Americus Ammo. Diss. Bone	Williams, Clark & Co.	New York.
Ammoniated Alkaline Phos	Chesapeake Guano Co	Baltimore, Md.
Ammoniated Bone Fertilizer	Farmers' Fertilizer Co	New York.
Ammoniated Bone Super Phos	Russell Coe	Linden, N. J.
Ammoniated Bone Super Phos	W. B. Seal	Baltimore, Md.
Ammoniated Bone Super Phos	R. J. Baker & Co	Baltimore, Md.
Ammoniated Super Phos	Port Royal Fertilizer Co	Port Royal, S. C.
Ammoniated Diss. Animal Bone	Baugh & Sons	Philadelphia, Pa.
Ammoniated Diss. Bone	Baldwin & Co	Newark, N. J.
Ammoniated Diss. Bone	John Merryman & Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ammoniated Diss. Bone	John Merryman & Co	Barren Island, N. Y.
Ammoniated Fertilizer (Edisto)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (McGee & Sons)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (Crayton & Sons)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (C. E. Lartigue)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer (J. P. Reed)	Edisto Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer	Charleston Phosphate Co	Charleston, S. C.
Ammoniated Fertilizer	Navassa Guano Co	Wilmington, N. C.
Anderson Phos	Edisto Phosphate Co	Charleston, S. C,
Ashepoo Bone Ash	Ashepoo Phosphate Co	Charleston, S. C.
Ashepoo Diss. Bone with Ammonia	Ashepoo Phosphate Co	Charleston, S. C.
Atlantic Fertilizer	Ashepoo Phosphate Co	Charleston, S. C.
Arlington "B" Ammo. Sol. Phos	Dambman Bros. & Co	Baltimore, Md.
Ash Element	Ashley Phosphate Co	Charleston, S. C.
Ash Element	Etiwan Phosphate Co	Charleston, S. C.
Ash Element	Wando Phosphate Co	Charleston, S. C.
Ash Element	Stono Phosphate Co	Charleston, S. C.
Ash Element	Charleston Phosphate Co	Charleston, S. C.
Ashepoo Fertilizer	Ashepoo Phosphate Co	Charleston, S. C.
Ash Mixture	Wando Phosphate Co	Charleston, S. C.
Avondale Ammo. Diss. Bone	G. Ober & Sons	Baltimore, Md.
Baker's Diss. Bone Phos	Chemical Co. of Canton.	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
B. and S. Standard Guano	Port Royal Fertilizer Co	Port Royal, S. C.
Bahama Soluble Guano	Walton, Whann & Co	Wilmington, Del.
Baltimore Crown Guano	Chesapeake Guano Co	Baltimore, Md.
Baltimore Soluble Bone	Baltimore Guano Co	Baltimore, Md.
Baugh's Pure Diss. Raw Bone	Baugh & Sons	Baltimore, Md.
Baugh's New Process Diss. Bone	Baugh & Sons	Baltimore, Md.
Baugh's Pure Raw Bone Meal	Baugh & Sons	Baltimore, Md.
Baugh's Pure Ground Raw Bone	Baugh & Sons	Baltimore, Md.
Baugh's No. 1 Fine Ground Bone Dust	Baugh & Sons	Baltimore, Md.
Baugh's Raw Bone Super Phos	Baugh & Sons	Baltimore, Md.
Baugh's Double Eagle Phos	Baugh & Sons	Baltimore, Md.
Baugh's Economical Fertilizer	Baugh & Sons	Baltimore, Md.
Baugh's New Process, No. 10 Guano	Baugh & Sons	Baltimore, Md.
Baugh's Special Substitute for 6 per cent. Peruvian Guano	Baugh & Sons	Baltimore, Md.
Baugh's A. A. Nitrogen	Baugh & Sons	Baltimore, Md.
Baugh's Sulphate	Baugh & Sons	Baltimore, Md.
Baugh's Chemicals	Baugh & Sons	Baltimore, Md.
Bradley's Ammo. Diss. Bone	Bradley Fertilizer Company	Boston, Mass.
Bremer Ammoniated Fertilizer	Read & Co	New York.
Buffalo Bone Guano	Furman Farm Imp. Co.	Atlanta, Ga.
Calvert Guano	P. Zell & Sons	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Carroll's Ammoniated Dissolved Bone	Williams, Clark & Co	New York.
Carolina Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
C. C. C. Cotton and Corn Compound	Ashley Phos. Co	Charleston, S. C.
Charleston Ammoniated Fertilizer	Charleston Phos. Co	Charleston, S. C.
Chesapeake Guano	Chesapeake Guano Co	Baltimore, Md.
Chicora Super Phos	Preston Fertz. Co	Preston Fertz. Co.
Circle Brand	Bradley Fertz. Co	Richmond, Va.
Colgate Manure	Chemical Co. of Canton	Baltimore, Md.
Columbia Super Phos	Moses & DeLeon	Baltimore, Md.
Columbia	Atlantic Phos. Co	Charleston, S. C.
Clarkson's Ammo. Fertz	Edisto Phos. Co.	Charleston, S. C.
Compound of Acid and Potash	Edisto Phos. Co	Charleston, S. C.
Compound Acid Phos., Kainit and Cotton Sead Meal	Edisto Phos. Co	Charleston, S. C.
Cotton Food	Maryland Fertz. and Mfg. Co	Baltimore, Md.
Cotton Seed Meal	Greenville Cotton Seed Oil Mill	Greenville, S. C.
Cotton Seed Meal	J. W. Mitchell	
Cotton Seed Meal	Edisto Phos. Co	Charleston, S. C.
Cotton States Soluble Phos	Long & Dugdale	Baltimore, Md.
Crescent Bone Fertilizer	Perry M. DeLeon	New York.
Cumberland Bone Co. Super Phos of Lime	Cumberland Bone Co	Boothbury, Me.
Dambman's Cotton and Grain Fertilizer	Dambman Bros. & Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883–84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Davis High Grade Ammo. Diss. Bone	Read & Co	New York.
DeLeon's Complete Fertilizer	Perry M. DeLeon	New York.
Diamond Soluble Bone	Walton, Whann & Co	Wilmington, Del.
Dissolved Bone	Stono Phos. Co	Charleston, S. C.
Dissolved Bone	Wando Phos. Co	Charleston, S. C.
Dissolved Bone	Ashley Phos. Co	Charleston, S. C.
Dissolved Bone Phos	Pacific Guano Co	Charleston, S. C.
Dissolved Bone Phos	Georgia Chemical Works	Augusta, Ga.
Dissolved Bone Phosphate	G. Ober & Sons' Co	Baltimore, Md.
Diss. S. C. Bone Phos	R. J. Baker & Co	Baltimore, Md.
Diss. S. C. Bone Phos.	Dambman, Bros & Co	Baltimore, Md.
Dixie Guano	Raisin Fertz. Co	Baltimore, Md.
Double Owl Brand	Davis & Whittle	Petersburg, Va.
Duncan's Phosphate	Edisto Phos. Co	Charleston, S. C.
Duncan's Ammo. Phos	Edisto Phos. Co.	Charleston, S. C.
Eagle Ammoniated Bone	Bradley Fertz. Co	Boston, Mass.
Eclipse	Baugh & Sons	Philadelphia, Pa.
Eddystone Sol. Guano	Clark's Cove Guano Co	Charleston, S. C.
Edisto Acidulated Rock	Edisto Phos. Co	Charleston, S. C.
Electric Guano	P. Zell & Sons	Baltimore, Md.
Empire Guano	Rasin Fertz. Co	Baltimore, Md.
Etiwan Acid Phos	Etiwan Phos. Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883–84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Etiwan Ash Element	Etiwan Phos. Co.	Charleston, S. C.
Etiwan Diss. Bone	Etiwan Phos. Co.	Charleston, S. C.
Etiwan Floats	Etiwan Phos. Co.	Charlesten, S. C.
Etiwan Guano	Etiwan Phos. Co.	Charleston, S. C.
Etiwan Kainit	Etiwan Phos. Co.	Charleston, S. C.
Etiwan Potash Compound	Etiwan Phos. Co.	Charleston, S. C.
Eureka	Atlantic and Va. Fertz. Co.	Richmond, Va.
Eutaw Fertilizer	Ashepoo Phos. Co.	Charleston, S. C.
Excellenza Cotton Fertilizer	Long & Dugdale	Baltimore, Md.
Excellenza Soluble Phos	Long & Dugdale	Baltimore, Md.
Farmers' Ammo. Diss. Bone	Port Royal Fertilizer Co.	Port Royal, S. C.
Farmers' Friend Fertilizer	Read & Co.	New York.
Fish Guano	N. R. Middleton, Jr.	Charleston, S. C.
Fish, Bone and Potash	Quinnipiac Fertz. Co.	New London.
Floats	Etiwan Phos. Co.	Charleston, S. C.
Floats	Stono Phos. Co.	Charleston, S. C.
Floats	Atlantic Co.	Charleston, S. C.
Furman's Formula	Furman Farm Imp. Co.	Atlanta, Ga.
Game Guano	Baltimore Guano Co.	Baltimore, Md.
Georgia Ammo. Bone Phos	Kerchner & Calder Bros	Wilmington, N. C.
Grain Fertilizer	Georgia Chemical Works	Augusta, Ga.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883–84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Georgia Planters' Favorite	Long & Dugdale	Baltimore, Md.
Georgia State Standard	Port Royal Fertz. Co	Port Royal, S. C.
Georgia State Grange Diss. Bone.	Hammond, Hull & Co	Savannah, Ga.
Georgia State Grange Fertilizer	Baldwin & Co	Newark, N. J.
Giant Guano	Rasin Fertz. Co	New York.
Gibbs & Co. High Grade Ammo. Phos	E. J. Powers	Wilmington, N. C.
Gowanus Bone Fertz	Dowie & Moise	Charleston, S. C.
Ground Phos. or Phos. Dust	Atlantic Phos. Co	Charleston, S. C.
Ground Phosphate	Ashley Phos. Co	Charleston, S. C.
Harle & Co.'s Diss. Bone	Edisto Phos. Co	Charleston, S. C.
High Grade Ammo. Bird Guano	Imported by R. J. Baker & Co	Baltimore, Md.
Home Fertilizer Chemicals	Boykin, Carmer & Co	New York.
Hope	Rasin Fertz. Co	Baltimore, Md.
Imperial	Williams, Clark & Co	New York.
Inman's Monarch	Williams, Clark & Co	New York.
Inman's San Domingo	Williams, Clark & Co	New York.
Kainit	Imported by Atlantic Phos. Co	Charleston, S. C.
Kainit	Imported by Ashley Phos. Co	Charleston, S. C.
Kainit	Imported by Etiwan Phos. Co	Charleston, S. C.
Kainit	Imported by Ashley Phos. Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Kainit	Imported by Stono Phos. Co	Charleston, S. C.
Kainit	Imported by Wando Phos. Co	Charleston, S. C.
Kainit	Imported by Dowie & Moise	Charleston, S. C.
Kainit	Imported by Ashepoo Phos. Co	Charleston, S. C.
Kainit	Imported by Kerchner & Calder Bros	Wilmington, N. C.
Kainit	Imported by H. Bulwinkle	Charleston, S. C.
Kainit	Imported by Boykin, Carmer & Co	Baltimore, Md.
Kainit	Imported by Edisto Phos. Co	Charleston, S. C.
Kainit	Imported by Alex. Kerr Bros. & Co	Baltimore, Md.
Kainit	Imported by Ashepoo Phos. Co	Charleston, S. C.
Kainit	Imported by Wilcox, Gibbs & Co	Charleston, S. C.
Kainit	Imported by Charleston Phos. Co	Charleston, S. C.
Kainit	Imported by Paul S. Felder	Charleston, S. C.
Kainit	Imported by Navassa Guano Co.	Wilmington, N. C.
Kainit	Imported by E. J. Powers	Wilmington, N. C.
Kainit	Imported by Georgia Chemical Works.	Augusta, Ga.
Kainit	Imported by Hammond, Hull & Co	Savannah, Ga.
Kainit	Imported by Baltimore Guano Co	Baltimore, Md.
Kainit	Imported by C. S. McCall	Bennettsville, S. C.
Kainit	Imported by Hume Bros. & Co	Port Royal, S. C.
Kainit	Imported by R. J. Tatum & Co	
Kainit	Imported by Royster & Strudwick	Norfolk, Va.
Kainit	Imported by F. W. Wagner & Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Kainit	Imported by J. I. Middleton & Co	Baltimore, Md.
Kainit	Imported by Rasin Fertz. Co	Baltimore, Md.
Labor Omnia Vincit. The Excelsior or Cotton Food	Hume Bros. & Co.	Port Royal, S. C.
Lockwood's Cotton Grower	Lockwood & McClintock	New York.
Lookout Fertilizer	Read & Co	New York.
Long's Prepared Chemicals	Long & Dugdale	Baltimore, Md.
Lowe's Georgia Formula	Georgia Chemical Works	Augusta, Ga.
Lee's Prepared Agricultural Lime	A. S. Lee	Richmond, Va.
Lister Bros.' Standard	Baldwin & Co	Port Royal, S. C.
Marion Fertilizer	Read & Co	New York.
Mastodon Guano	Georgia Chemical Works	Augusta, Ga.
Matchless Cotton Grower	Read & Co	New York.
McCall's High Grade Ammoniated Phosphate	Read & Co	" "
McCall's Perfection	Read & Co	" "
McGee & Sons' High Grade Fertilizer	Edisto Phos. Co	Charleston, S. C.
Middleton's Fish Ammoniated Phosphate	N. R. Middleton, Jr	" "
Navassa Guano	Navassa Guano Co	Wilmington, N. C.
Nassau Guano	Bowker Fertilizer Co	New York.
Nova Scotia Land Plaster	L. C. Cummings & Co	Portland, Me.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Number 1 Diss. Raw Bone	R. J. Baker & Co	Baltimore, Md.
Oglethorpe Ammo. Diss. Bone	Hammond, Hull & Co	Port Royal, S. C.
Oglethorpe Diss. Bone	Hammond, Hull & Co	" " "
Orient Complete Manure	Atlantic and Va. Fertz. Co	Richmond Va.
Oriental Ammo. Diss. Bone	Read & Co	New York.
Orchilla Guano	Imported by Travers, Snead & Co	Savannah, Ga.
Owl Brand	Davie & Whittle	Petersburg, Va.
Old Reliable	Port Royal Fertilizer Co	Port Royal, S. C.
Paragon Diss. S. C. Bone	Long & Dugdale	Baltimore, Md.
Patapsco Ammo. Sol. Phos	Patapsco Guano Co	" "
Patent Pacific	Webster, Davis & Co	Atlanta, Ga.
Patapsco Ammo. Sol. Phos	Georgia Chemical Works	Augusta, Ga.
Planters' Friend	Read & Co	New York.
P. D. Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
Pee Dee Fertilizer, (No. 2.)	A. A. Pollack	Cheraw S. C.
Pelican Bone Fertilizer	H. I. Baker & Co	New York.
Peruvian Guano No. 1, Lobos	Imported by J. M. Hurtado	" "
Peruvian Guano, Standard No. 1.	Imported	
Piedmont Special Fertilizer	Piedmont Guano Mf'g Co	Baltimore, Md.
Pine Island Ammo. Phos	Quinnipiac Fertilizer Co	New London, Conn.
Planters' Favorite	Long & Dugdale	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Planters' Fertilizer	Read & Co	New York.
Plow Brand Raw Bone Super Phos	Walton, Whann & Co	Baltimore Md.
Pomona Guano	Perry M. DeLeon	New York.
Port Royal Cotton Fertilizer	Hammond, Hull & Co	Port Royal, S. C.
Port Royal Diss. Bone Phos	Hammond, Hull & Co	Port Royal, S. C.
Port Royal Pure Diss. Bone	Hammond, Hull & Co	Port Royal, S. C.
Pure Diss. Raw Bone	R. J. Baker & Co	Baltimore, Md.
Prepared Fish	Mapes Formula and Peruvian Guano Co	Newark, N. J.
Premium Guano	Hymans & Dancy	Norfolk, Va.
Pure Ground Fish	Mapes Formula and Peruvian Guano Co	Newark, N. J.
Russell Coe's Super Phos	Russell Coe	Linden, N. J.
Raw Bone Super Phos	Jno. Harle & Co	New York, and Atlanta, Ga.
Robson's Cotton and Corn Fertilizer	Clark's Cove Guano Co	New Bedford, Mass.
Ruth's Magic Guano	T. D. C. Ruth	Baltimore, Md.
Santee Fertilizer	Edisto Phos Co	Charleston, S. C.
Sea Fowl (B. D.) Guano	Bradley Fertilizer Co	Boston, Mass.
Sea Gull Guano	Patapsco Guano Co	Baltimore, Md.
Siddon's Ammo. Bone Phos	L. Seldner & Son	Baltimore, Md.
S. G. S. Small Grain Specific	Ashley Phos. Co	Charleston, S. C.
Slingluff's Diss. Bone Fertilizer	Boykin, Carmer & Co	New York.
Slingluff's Home Fertilizer	Boykin, Carmer & Co	New York.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Soluble Ammo. Super Phos. of Lime	G. Ober & Sons' Co	Baltimore, Md.
Soluble Guano	Ashley Phos. Co	Charleston, S. C.
Soluble Pacific Guano	Pacific Guano Co	Charleston, S. C.
Soluble Sea Island	Rasin Fertilizer Co	Baltimore, Md.
South American	Rasin Fertilizer Co	Baltimore, Md.
Special Fertilizer	Baugh & Sons	Baltimore, Md.
Special Mixture	Baugh & Sons	Baltimore, Md.
Stackhouse & Holliday's Ammo. Phos	Read & Co	New York.
Star Brand Guano	Allison & Addison	Petersburg, Va.
Sterling Bone	Read & Co.	New York.
Sterling.	Lockwood & McClintock	New York.
Stono Soluble Guano	Stono Phos. Co.	Charleston, S. C.
The Great Potash Fertilizer, Alkaline Guano.	Edisto Phos. Co	Charleston, S. C.
The Trade Mark Ammo. Guano	Lorentz & Rittler	Baltimore, Md.
Universal Ammo. Diss. Bone	Williams, Clark & Co	New York.
Victor	Read & Co	New York.
Victor Ammo. Diss. Bone	Williams, Clark & Co.	New York.
Wagener's Ammo. Bone	Read & Co	New York.
Wagener's Ammo. Fertz	Read & Co	New York.
Walker's Ammo. Cotton Phos	Joshua Walker	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1883-84.—CONCLUDED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Walker's Diss. S. C. Phos.	Joshua Walker	Baltimore, Md.
Wando Fertilizer	Wando Phosphate Company	Charleston, S. C.
Wilcox, Gibbs & Co.'s Manipulated Guano	Wilcox, Gibbs & Co	Charleston, S. C.
Wilcox, Gibbs & Co.'s Superphosphate	Wilcox, Gibbs & Co	Charleston, S. C.
Yemasee Fertilizer	Ashepoo Phosphate Company	Charleston, S. C.
Zell's Ammo. Bone Superphosphate	P. Zell & Son	Baltimore, Md.
Zell's Economizer	P. Zell & Son	Baltimore, Md.

FERTILIZER ANALYSES FOR FARMERS.

Analyses of samples of fertilizers will be made for farmers when the regular analytical work of the Department shall have been finished.

Several samples were sent in during the last season in packages so insecure as to make them practically valueless. Particular attention is, therefore, called to the following directions: Draw a sample from each sack, taking portions from the top, centre and bottom of the sack, if possible. Mix these samples together thoroughly; take about a quart, place it in a glass bottle or tin can; cork and seal tightly. Mark the bottle or can with the name and address of the vendor. Pack securely in a box and forward by express, prepaid, to P. E. Chazal, Chemist Department of Agriculture, Columbia, S. C. Send an abstract of the brand on the bag, (blanks can be obtained on application at this office,) giving full guaranteed analysis, name of article and name of manufacturer and dealer, to this office.

No analyses will be made unless these regulations are strictly complied with.

A. P. BUTLER,
Commissioner.

SAMPLES OF WATER FOR ANALYSIS.

Persons desiring to have samples of water examined will please observe the following directions:

Take a new two or three gallon demijohn; clean thoroughly, rinsing finally with some of the water to be examined. Fill the demijohn quite full; close with a new and clean cork and seal tightly. Mark with name and address of sender and forward by express, prepaid, to P. E. Chazal, Chemist Department of Agriculture, Columbia, S. C.

REPORT OF CHEMIST.

COLUMBIA, S. C., October 31, 1884.

Hon. A. P. BUTLER, *Commissioner.*

DEAR SIR: I beg leave to submit my report on the work performed in this laboratory during the past season of 1883–84.

Owing to the delays in completing the repairs on the Department building, the laboratory was not completed until the end of last January; in ample time for the execution of the regular analysis of commerical fertilizers, but too late for the completion of the experiments in "available nitrogen," an account of which was published by Prof. Shepard and myself in your last Annual Report.

The total number of fertilizer samples examined during the past season was one hundred and fifty-six, classified as follows:

Acid Phosphates	16
Acid Phosphates with Potash	37
Ammoniated Acid Phosphates	9
Complete Fertilizers	82
Kainits	9
Ash Elements	1
Chemicals	2
	156

These analyses involved the following number of determinations:

Of Phosphoric Acid	632
Of Nitrogen	102
Of Potash	154

Tables of Analyses and Relative Commercial Values, Season of 1883–84, *with Manufacturers' Minimum Guarantees.*

TABLE I.—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

Sample Number.	Brand of Fertilizer.	Phosphoric Acid.					Nitrogen.	Equivalent to Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	Manufacturers' Minimum Guarantee.				Sample Number.
		Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
60	Ashepoo Dissolved Bone	13.68	2.64	7.84	3.20	11.04	1.42	1.72	1.39	$23 73	10.00	1.00	1.00	$19 40	60
27	Ashepoo Fertilizer	11.03	2.63	6.35	2.05	8.40	2.51	3.05	1.60	24 28	8.00	2.00	1.00	19 60	27
186	Ashley Soluble Guano	11.03	1.62	7.19	2.22	9.41	2.58	3.13	1.97	26 50	8.00	2.00	1.60	19 60	186
42	Atlantic Fertilizer	10.32	2.49	4.48	3.35	7.83	2.74	3.33	2 11	24 94	8.00	2 50	1.00	21 20	42
181	Atlantic Phosphate	11.11	2.54	4.55	4.02	8.57	2.74	3.33	0.90	24 60	8.00	2 50	1.00	21 20	181
80	Bahama Guano	12.15	2.13	5.48	4.54	10.02	2.87	3.49	1.88	28 46	10 00	2.75	2.25	26 50	80
55	Baker's Prepared Chemicals	13.61	5.95	3.19	4.47	7.66	1.02	1.24	2.15	18 04	10 00	0.50	2.00	19 00	55
1	Baker's Standard Guano	12.82	4.82	4.97	3.03	8.00	2.23	2.71	1.25	22 17	8.00	2.00	2.00	20 80	1
2	Bald Eagle	13.74	5.22	5.44	3.08	8.52	2.65	3.22	1.55	24 94	8.00	2.50	1.60	21 92	2
223	Bradley's Ammoniated Dissolved Bone	12.63	1.64	8.87	2.12	10.99	1.89	2.30	1.19	25 28	8.00	1.50	1.00	18 00	223
78	Carolina Fertilizer	11.44	1.85	7.15	2 44	9.59	2.37	2.88	1.49	25 40	8.00	2.00	1 00	19 60	78
9	Charleston Phosphate Company's Fertilizer	10.41	3.39	3 68	3.34	7.02	2.01	2.44	1.72	20 40	7.30	1.65	1.50	18 03	9
183	Chesapeake Guano Company's Ammoniated Alkaline Fertilizer	11.03	2.33	3.54	5.16	8.70	2.27	2.76	2.06	24 35	8.00	2.00	1.50	20 20	183
90	Chicora	13.56	3.46	6.79	3.31	10.10	0.51	0.62	1.55	18 99	8.00	2.00	2.00	20 80	90
84	Colgate Manure	12.61	5.00	6.33	1.28	7.61	2.33	2.83	1.05	21 74	8.00	2.00	2.00	20 80	84
196	Columbia Ammoniated Fertilizer	10.03	1.38	6.61	2.04	8.65	2.42	2.94	1.57	24 27	9.00	2.25	1.22	22 16	196
193	Combahee Phosphate	11.49	1.76	6.85	2.88	9.73	2.61	3.17	1 50	26 54	8.00	2.00	1.00	19 60	193
148	Cotton Food	11.51	2.45	5.77	3.29	9.06	1.86	2.26	1.49	22 61	8.00	2 00	1.35	20 02	148
171	Cotton States Soluble Phosphate	11.36	1.43	7.71	2.22	9.93	2.21	2 68	....	23 48	8.00	2.00	....	18 40	171
134	Cotton States Soluble Phosphate	9.78	0.82	6.79	2.17	8 96	2.56	3.11	....	23 39	8.00	2.00	....	18 40	134
50	Cranston's Ammoniated Dissolved Bone	12.74	2.23	8.30	2.21	10.51	1.98	2.41	0.77	24 40	9.00	2 50	1.08	22 80	50
198	Crayton & Sons' Ammoniated Fertilizer	11.53	2.77	6.31	2.45	8.76	1.84	2.23	1.34	21 89	8.00	2.00	1.50	20 20	198
12	Crescent Bone Fertilizer	9.90	1.18	6.45	2.27	8.72	2 03	2.47	1.36	22 61	8.00	2 00	1.08	19 70	12
228	Dambmann's Cotton and Grain Fertilizer	10.94	2.01	5 75	3.18	8.93	2.08	2 53	1.67	23 50	8.00	2.00	1.00	19 60	228
214	Eagle Brand Guano	7.35	1.23	3.12	3.00	6.12	1.02	1.24	0.67	13 95	6.00	1.00	1.00	13 40	214
203	Eddystone Soluble Guano	11 07	1.77	6.45	2 85	9 30	2.68	3.25	1.43	26 07	8.00	2.00	1.00	19 60	203
53	Edisto Ammoniated Fertilizer	11.68	1.75	7.13	2.80	9.93	1.29	1 57	2.43	22 84	8.00	2.00	1.00	19 60	53
102	Edisto Ammoniated Fertilizer	11.53	1.66	7.76	2.11	9.87	1.54	1.87	1.14	22 16	8.00	2.00	1.00	19 60	102
141	Edisto Guano	11.39	1.51	7.25	2.63	9.88	1.50	1.82	1.20	22 08	8.00	2.00	1.00	19 60	141

Table of Analyses and Relative Commercial Values, Season of 1883–84, with Manufacturers' Minimum Guarantees.

TABLE I. *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

SAMPLE NUMBER.	SAMPLE DRAWN.	WHERE DRAWN.	BRAND OF FERTILIZER.	BY WHOM MANUFACTURED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1884.					
60	February 14	Darlington	Ashepoo Dissolved Bone	Ashepoo Phosphate Co.	Charleston, S. C.	60
27	January 31	Marion	Ashepoo Fertilizer	Ashepoo Phosphate Co.	Charleston, S. C.	27
186	March 4	Anderson	Ashley Soluble Guano	Ashley Phosphate Co.	Charleston, S. C.	186
42	February 2	Orangeburg	Atlantic Fertilizer	Atlantic Phosphate Co.	Charleston, S. C.	42
181	March 3	Hodges	Atlantic Phosphate	Atlantic Phosphate Co.	Charleston, S. C.	181
80	February 18	Greenville	Bahama Guano	Walton, Whann & Co.	Wilmington, Del.	80
55	February 13	Cheraw	Baker's Prepared Chemicals	Chemical Company of Canton	Baltimore, Md.	55
1	January 25	Columbia	Baker's Standard Guano	Chemical Company of Canton	Baltimore, Md.	1
2	January 30	Trenton	Bald Eagle	Georgia Chemical Works	Augusta, Ga.	2
223	March 21	Laurens	Bradley's Ammoniated Dissolved Bone	Bradley Fertilizer Co.	Boston, Mass.	223
78	February 15	Belton	Carolina Fertilizer	Robertson, Taylor & Co.	Charleston, S. C.	78
9	January 30	Trenton	Charleston Phosphate Company's Fertilizer	Charleston Phosphate Co.	Charleston, S. C.	9
183	March 1	Greenwood	Chesapeake Guano Co's Ammoniated Alkaline Fertilizer	Chesapeake Guano Co.	Baltimore, Md.	183
90	February 20	Spartanburg	Chicora	Chemical Company of Canton	Baltimore, Md.	90
84	February 18	Greenville	Colgate Manure	Chemical Company of Canton	Baltimore, Md.	84
196	March 4	Anderson	Columbia Ammoniated Fertilizer	Albert DeLeon & Bro.	Baltimore, Md.	196
193	March 4	Anderson	Combahee Phosphate	Combahee Phosphate Co.	Charleston, S. C.	193
148	February 27	Newberry	Cotton Food	Maryland Fertilizer Co.	Baltimore, Md.	148
171	February 28	Rock Hill	Cotton States Soluble Phosphate	Long & Dugdale	Baltimore, Md.	171
134	February 26	Lancaster	Cotton States Soluble Phosphate	Long & Dugdale	Baltimore, Md.	134
50	February 8	Appleton	Cranston's Ammoniated Dissolved Bone	R. P. Sibley, General Agent	Augusta, Ga.	50
198	March 6	Anderson	Crayton & Sons' Ammoniated Fertilizer	Edisto Phosphate Co.	Charleston, S. C.	198
12	January 30	Trenton	Crescent Bone Fertilizer	Perry M. DeLeon	New York.	12
228	March 21	Laurens	Dambmann's Cotton and Grain Fertilizer	Dambmann Bros. & Co.	Baltimore, Md.	228
214	March 14	Spartanburg	Eagle Brand Guano	Potomac Fertilizer Co.	Alexandria, Va.	214

Table of Analyses and Relative Commercial Values, Season of 1883-84, *with Manufacturers' Minimum Guarantees.*

TABLE I, *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

Sample Number.	BRAND OF FERTILIZER.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
		Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
31	Etiwan Guano	11.29	2.24	6.70	2.35	9.05	2.25	2.73	1.08	$23 62	8.00	2.00	1.00	$19 60	31
164	Eureka Ammoniated Bone Superphosphate of Lime	13.84	2.85	8.76	2.23	10.99	2.63	3.19	....	26 70	8.00	2.00	....	18 40	164
77	Eutaw Fertilizer	11.20	1.91	6.55	2.74	9.29	2.56	3.11	1.26	25 40	8.00	2.00	1.00	19 60	77
176	Eutaw Fertilizer	12.33	2.44	4.30	5.59	9.89	2.83	3.44	1.42	27 55	8.00	2.00	1.00	19 60	176
215	Excellenza Cotton Fertilizer	12.78	2.92	7.88	1.98	9.86	2.90	3.52	....	26 05	10.00	2.30	....	22 36	215
255	Farmers' Fertilizer Co.'s Ammoniated Bone Fertilizer	8.82	1.45	5.66	1.71	7.37	2.11	2.55	0.59	19 93	7.36	2.40	1.45	20 46	255
233	Felder's Planters' Fertilizer	10.54	1.44	6.63	2.47	9.10	3.09	3.75	1.11	25 65	8.00	3.25	1.00	23 60	233
34	Georgia Ammoniated Bone Superphosphate	13.04	2.70	6.59	3.75	10.34	2.55	3.10	1.88	27 69	8.00	2.25	1.25	20 70	34
269	Gibbes & Co.'s High Grade Ammoniated Phosphate	11.69	10.00	9.54	2.15	11.69	2.40	3.06	1.96	29 68	9.00	2.00	2.00	22 30	269
265	Good Luck Guano	10.82	2.37	8.42	0.03	8.45	2.61	3.17	0.99	24 01	8.00	2.00	1.00	19 60	265
213	Greenville Fertilizer	8.61	0.70	5.50	2.41	7.91	2.88	3.50	2.46	26 02	7.00	2.00	1.50	18 70	213
69	Harle & Co.'s Raw Bone Superphosphate	11.42	1.40	1.99	8.03	10.02	2.53	3.07	0.96	26 00	8.00	2.00	1.00	19 60	69
16	Huiet's Great Potash Fertilizer	11.50	1.54	7.66	2.30	9.96	2.61	3.17	2.06	27 55	8.00	2.00	2.70	21 64	16
217	Inman's Imperial Guano	10.39	1.62	5.81	2.96	8.77	3.02	3.64	....	24 81	9.00	2.00	....	19 90	217
85	Inman's Monarch Guano	9.56	1.55	5.93	2.08	8.01	2.17	2.64	0.91	21 56	9.00	2.00	1.00	21 10	85
170	Jones & Robertson's Comp. of Acid Phos., Kainit & Cotton S Meal	8.02	1.77	5.06	1.19	6.25	2.33	2.83	3.88	23 00	4.50	2.50	4.00	19 55	170
95	L. & C. Dissolved Bone with Ammonia and Potash	14.04	2.76	7.82	3.46	11.28	1.21	1.47	0.96	22 77	10.00	1.00	1.00	19 40	95
39	Marion Fertilizer	10.55	1.78	6.59	2.18	8.77	2.67	3.24	2.05	25 99	8.00	3.00	2.25	24 30	39
14	Mastodon Ammoniated Soluble Phosphate	13.76	5.06	5.42	3.28	8.70	2.76	3.35	1.51	25 58	8.00	2.00	1.00	19 60	14
6	Merryman's Ammoniated Dissolved Bone	12.58	2.79	7.35	2.44	9.79	2.82	3.42	....	25 63	10.00	2.30	....	22 42	6
157	Middleton & Co.'s High Grade Ammoniated Superphosphate	12.20	4.81	5.24	2.15	7.39	2.20	2.67	1.10	20 95	8.91	3.21	1.40	25 32	157
47	Moorer & Co.'s Ammoniated Superphosphate	7.25	1.01	4.90	1.34	6.24	2.47	2.99	2.90	22 41	7.00	2.00	2.40	19 78	47
158	Navassa Ammoniated Cotton Fertilizer	12.23	2.25	4.88	5.10	9.98	2.21	2.68	1.68	25 57	8.00	2.00	1.00	19 60	158
133	Navassa Ammoniated Soluble Guano	12.26	2.55	4.30	5.41	9.71	2.63	3.20	1.19	26 24	8.00	2.00	1.00	19 60	133
177	Navassa Guano	11.95	2.12	7.13	2.70	9.83	2.68	3.25	0.76	26 06	8.00	2.63	1.25	21 92	177
174	Ober's Soluble Ammoniated Superphosphate	10.50	0.60	8.34	1.56	9.90	3.39	4.12	1.48	29 91	8.00	2.00	1.00	19 60	174
209	Orient Complete Manure	12.44	2.23	8.30	1.91	10.21	2.34	2.84	1.56	26 28	8.00	2.00	1.00	19 60	209
71	Owl Brand Guano	11.65	2.32	7.31	2.02	9.33	1.87	2.27	1.61	23 19	8.00	2.00	1.00	19 60	71
165	Patapsco Ammoniated Soluble Phosphate	13.65	5.60	5.63	2.42	8.05	2.67	3.24	1.06	23 72	8.00	2.00	1.00	19 60	165

Table of Analyses and Relative Commercial Values, Season of 1883–84, *with Manufacturers' Minimum Guarantees.*

TABLE I, *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

SAMPLE NUMBER.	SAMPLE DRAWN.	WHERE DRAWN.	BRAND OF FERTILIZER.	BY WHOM MANUFACTURED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1884.					
31	February 1	Marion	Etiwan Guano	Etiwan Phosphate Co	Charleston, S. C	31
164	March 1	Winnsboro	Eureka Ammoniated Bone Superphosphate of Lime	Atlantic & Virginia FertilizerCo	Richmond, Va	164
77	February 15	Belton	Eutaw Fertilizer	Ashepoo Phosphate Co	Charleston, S. C	77
176	February 28	Rock Hill	Eutaw Fertilizer	Ashepoo Phosphate Co	Charleston, S. C	176
215	March 14	Spartanburg	Excellenza Cotton Fertilizer	Long & Dugdale	Baltimore, Md	215
255	April 4	Sumter	Farmer's Fertilizer Co.'s Ammoniated Bone Fertilizer	Farmer Fertilizer Co	New York	255
233	April 12	Graham's	Felder's Planters' Fertilizer	Reed & Co	New York	233
34	February 1	Marion	Georgia Ammodiated Bone Superphosphate	Kerchner & Calder Bros	Wilmington, N. C	34
269	April 17	Marion	Gibbes & Co's High Grade Ammoniated Phosphate	F. J. Powers	Wilmington, N. C	269
265	April 17	Marion	Good Luck Guano	George W. Miles & Co	Milford, Conn	265
213	March 11	Greenville	Greenville Fertilizer	Greenville Cotton Seed Oil and	Ice Co. Greenville, S.C.	213
69	February 13	Greenwood	Harle & Co.'s Raw Bone Superphosphate	James W. Harle & Co	Atlanta and New York.	69
16	January 31	Batesburg	Huiet's Great Potash Fertilizer	Edisto Phosphate Co	Charleston, S. C	16
217	March 14	Spartanburg	Inman's Imperial Guano	Williams, Clark & Co	New York	217
85	February 18	Greenville	Inman's Monarch Guano	Williams, Clark & Co	New York	85
170	February 28	Rock Hill	Jones & Robertson's Comp. of Acid Phos. Kainit & C. S. Meal.	Edisto Phosphate Co	Charleston, S. C	170
95	February 20	Spartanburg	L. & C. Dissolved Bone with Ammonia and Potash	Ashepoo Phosphate Co	Charleston, S. C	95
39	February 11	Marion	Marion Fertilizer	Read & Co	New York	39
14	January 31	Johnston	Mastodon Ammoniated Soluble Phosphate	Georgia Chemical Works	Augusta, Ga	14
6	January 30	Trenton	Merryman's Ammoniated Dissolved Bone	Jno. Merryman & Co	Baltimore, Md	6
157	February 28	Rock Hill	Middleton & Co's High Grade Ammoniated Superphosphate.	J. I. Middleton & Co	Baltimore, Md	157
47	February 4	George's	Moorer & Co's Ammoniated Superphosphate	Ashley Phosphate Co	Charleston, S. C	47
158	February 28	Rock Hill	Navassa Ammoniated Cotton Fertilizer	Navassa Guano Co	Wilmington, N. C	158
133	February 25	Chester	Navassa Ammoniated Soluble Guano	Navassa Guano Co	Wilmington, N. C	133
177	March 1	Ninety Six	Navassa Guano	Navassa Guano Co	Wilmington, N. C	177
174	February 28	Rock Hill	Ober's Soluble Ammoniated Superphosphate	G. Ober, Sons & Co	Baltimore, Md	174
209	March 11	Greenville	Orient Complete Manure	Atlantic & Virginia FertilizerCo	Orient, L.I., Rich'd, Va	209
71	February 13	Greenwood	Owl Brand Guano	Davie & Whittle	Petersburg, Va	71
165	**March 1**	**Winnsboro**	**Patapsco Ammoniated Soluble Phosphate**	**Georgia Chemical Co**	**Augusta, Ga**	**165**

Table of Analyses and Relative Commercial Values, Season of 1883-84, with Manufacturers' Minimum Guarantees.

TABLE I, *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

Sample Number.	BRAND OF FERTILIZER.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
		Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
26	P. D. Fertilizer	11.96	2.69	7.03	2.24	9.27	2.07	2.51	1.45	$23 68	8.00	2.00	1.00	$19 60	26
57	Pee Dee Fertilizer, No 2	1.64	0.22	0.92	0.50	1.42	1.38	1.62	1.44	9 04	1.77	1.40	1.72	9 20	57
266	Pine Island Ammoniated Phosphate	12.90	1.91	5.28	5.71	10.99	2.95	3.58	0.87	28 99	8.00	2.00	1.00	19 60	266
248	Planters' Fertilizer	10.68	1.53	6.17	2.98	9.15	2.93	3.56	1.09	26 43	8.00	3.25	1.00	23 60	248
166	Planters' Friend Ammoniated Dissolved Bone	12.65	4.06	3.90	4.69	8.59	2.00	2.43	1.70	22 71	8.00	2.00	0.80	19 36	166
240	Planters' Friend Ammoniated Dissolved Bone	11.88	2.42	3.68	5.78	9.46	2.29	2.78	....	23 09	8.00	2.00	....	18 40	240
52	Plow Brand Raw Bone Superphosphate	12.03	1.54	6.01	4.48	10.49	2.89	3.51	2.67	30 17	10.00	2.75	2.25	26 50	52
221	Port Royal Cotton Fertilizer	10.34	0.86	8.47	1.01	9.48	2.42	2.94	2.87	27 07	9.00	2.00	2.50	22 90	221
94	Premium Guano	11.72	3.66	5.01	2.45	8.66	2.69	3.27	0.87	23 59	8.00	2.00	0.50	19 90	94
267	Quinnipiac Co.'s Fish Bone Potash	14.81	4.42	0.30	10.09	10.39	2.16	2.62	3.30	27 93	7.00	1.50	2.00	17 70	267
87	Russell Coe's Ammoniated Bone Superphosphate	10.15	1.43	6.55	2.17	8.72	2.83	3.44	1.80	26 25	10.00	2.00	1.50	23 20	87
82	Santee Fertilizer	11.38	1.77	7.75	1.86	9.61	1.31	1.54	1.34	21 12	7.00	2.00	1.00	18 10	82
222	Sea Fowl Guano	12.40	1.78	8.32	2.30	10.62	2.70	3.28	1.06	27 70	8.00	2.25	1.00	20 40	222
75	Slingluff's Pure Dissolved Bone	17.81	2.31	13.01	2.49	15.50	1.34	1.63	....	28 47	13.77	1.72	....	26 16	75
15	Soluble Pacific Guano	13.19	3.24	6.25	3.70	9.95	2.35	2.85	0.79	25 00	8.00	2.00	1.00	19 60	15
190	Star Brand Guano	9.78	1.73	5.93	2.12	8.05	1.66	2.02	1.85	20 76	7.00	1.50	1.00	16 50	190
225	Sterling Guano	11.84	2.40	6.89	2.55	9.44	1.93	2.34	1.10	22 97	8.00	2.00	1.00	19 60	225
5	Stono Soluble Guano	11.39	4.83	2.99	3.52	6.56	2.73	3.31	1.18	21 85	8.00	2.50	1.00	21 20	5
25	Stono Soluble Guano	10.40	3.61	3.83	2.96	6.79	2.95	3.58	1.63	23 61	8.00	2.50	1.00	21 20	25
195	Victor Ammoniated Dissolved Bone	10.02	1.26	5.65	3.11	8.76	2.59	3.15	....	23 22	8.00	2.00	....	18 40	195
205	Victor Guano	12.29	1.62	8.02	2.65	10.67	2.22	2.70	0.71	25 50	8.00	2.00	0.75	19 30	205
23	Wagener's Ammoniated Bone	10.11	1.80	5.77	2.54	8.31	1.61	1.96	0.70	19 58	8.00	1.50	0.81	17 77	23
200	Wagener's Ammoniated Fertilizer	11.43	1.35	7.21	2.87	10.08	2.38	2.89	1.20	25 81	10.00	2.50	1.22	24 46	200
21	Wando Fertilizer	10.75	1.90	6.40	2.45	8.85	2.23	2.71	1.51	23 76	8.00	2.40	1.00	20 88	21
70	Wando Fertilizer	10.83	2.11	6.06	2.67	8.72	2.53	3.07	1.43	24 62	8.00	2.40	1.20	21 12	70
44	Wilcox, Gibb's & Co.'s Manipulated Guano	9.01	1.52	6.70	0.79	7.49	2.73	3.32	3.32	25 84	8.00	2.50	2.00	22 40	44
58	Yemassee Fertilizer	11.67	1.85	6.94	2.88	9.82	2.25	2.73	1.82	25 65	8.00	2.00	1.00	19 60	58
28	Zell's Ammoniated Bone Superphosphate	12.13	2.31	6.97	2.85	9.82	2.39	2.90	1.08	25 31	9.33	2.33	1.11	22 79	28

Table of Analyses and Relative Commercial Values, Season of 1883-84, with Manufacturers' Minimum Guarantees.

TABLE I, *Concluded.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

SAMPLE NUMBER.	SAMPLE DRAWN.	WHERE DRAWN.	BRAND OF FERTILIZER.	BY WHOM MANUFACTURED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1884.					
26	January 31	Marion	P. D. Fertilizer	Robertson, Taylor & Co.	Charleston, S. C.	26
57	February 13	Cheraw	Pee Dee Fertilizer, No 2	Pollock & Co	Cheraw, S. C.	57
266	April 17	Marion	Pine Island Ammoniated Phosphate	Quinnipiac Fertilizer Co.	New London, Conn.	266
248	April 2	Camden	Planters' Fertilizer	Read & Co.	New York	248
166	March 1	Winnsboro	Planters' Friend Ammoniated Dissolved Bone	Read & Co.	New York	166
240	March 25	Winnsboro	Planters' Friend Ammoniated Dissolved Bone	Manufact'd for J. M. Ivy & Co.	Rock Hill, S. C.	240
52	February 11	Marion	Plow Brand Raw Bone Superphosphate	Walton, Whann & Co.	Wilmington, Del	52
221	March 21	Laurens	Port Royal Cotton Fertilizer	Hammond, Hull & Co.	Port Royal, S. C.	221
94	February 20	Spartanburg	Premium Guano	Hyman & Dancy		94
267	April 17	Marion	Quinnipiac Co.'s Fish Bone Potash	Quinnipiac Fertilizer Co.	New London, Conn.	267
87	March 6	Anderson	Russell Coe's Ammoniated Bone Superphosphates	Russell Coe	Linden, N. J.	87
82	February 18	Greenville	Santee Fertilizer	Manufact'd for John Slattery	Greenville, S. C.	82
222	March 21	Laurens	Sea Fowl Guano	Wm. L. Bradley	Boston, Mass.	222
75	February 14	Hodges	Slingluff's Pure Dissolved Bone	Boykin, Carmer & Co.	Baltimore, Md.	75
15	January 31	Batesburg	Soluble Pacific Guano	Pacific Guano Co.	Boston and Charleston	15
190	March 4	Anderson	Star Brand Guano	Allison & Addison	Richmond, Va.	190
225	March 21	Laurens	Sterling Guano	Manhattan Chemical Co.	New York	225
5	January 30	Trenton	Stono Soluble Guano	Stono Phosphate Co	Charleston, S. C.	5
25	January 31	Florence	Stono Soluble Guano	Stono Phosphate Co	Charleston, S. C.	25
195	March 4	Anderson	Victor Ammoniated Dissolved Bone	Williams, Clark & Co.	New York	195
205	March 8	Johnston	Victor Guano	Read & Co.	New York	205
23	January 30	Sumter	Wagener's Ammoniated Bone			23
200	March 6	Anderson	Wagener's Ammoniated Fertilizer			200
21	January 30	Sumter	Wando Fertilizer	Wando Phosphate Co.	Charleston, S. C.	21
70	February 13	Greenwood	Wando Fertilizer	Wando Phosphate Co.	Charleston, S. C.	70
44	February 4	George's	Wilcox, Gibbs & Co.'s Manipulated Guano	Wilcox, Gibbs & Co.	Charleston, S. C.	44
58	February 14	Darlington	Yemassee Fertilizer	Robertson, Taylor & Co.	Charleston, S. C.	58
28	January 31	Marion	Zell's Ammoniated Bone Superphosphate	P. Zell & Sons	Baltimore, Md.	28

TABLE II.—ACID PHOSPHATES WITH AND WITHOUT POTASH.

Sample Number.	BRAND OF ACID PHOSPHATE.	PHOSPHORIC ACID.					Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.			Sample Number.
		Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.			Available Phosphoric Acid.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.		
97	Accabee Acid Phosphate	16.56	2.80	9.42	4.34	13.76	0.27	$20 96	10.00	1.00	$16 20	97
199	Anderson Phosphate	8.64	1.36	5.05	2.23	7.28	5.37	17 36	6.00	5.00	15 00	199
30	Ashepoo Acid Phosphate	16.53	3 60	8.10	4.83	12.93	0.14	19 57	10.00	1.00	16 20	30
48	Ashepoo Acid Phosphate	15.33	3.05	8.50	3.78	12.28	0.27	18 74	10.00	1.00	16 20	48
261	Ashepoo Bone Ash	13.30	4.23	5.93	3.14	9.07	1.03	14 85	10.00	1.50	16 80	261
185	Ashley Acid Phosphate	14.17	3.13	6.01	5.03	11.04	0.80	17 52	10.00	0.54	15 65	185
59	Ashley Ash Element	8.80	4.54	0.11	4.15	4.26	4.39	11 66	....	3.79	4 55	59
33	Atlantic Acid Phosphate	13.31	2.20	7.44	3.67	11.11	1.12	18 01	10.00	1.00	16 20	33
37	Baltimore Soluble Bone	14.53	1.74	6.01	6.78	12.79	....	19 19	12.00	....	18 00	37
10	Charleston Phosphate Co.'s Acid Phosphate	11.35	1.64	4.92	4.79	9.71	1.35	16 19	10.00	1.25	16 50	10
81	Cherokee Dissolved Bone	14.13	2.52	6.99	4.62	11.61	0.98	18 60	11.00	1.08	17 80	81
197	Columbia Acid Phosphate	14.01	2.48	7.82	3.71	11.53	0.99	18 49	10.00	1.00	16 20	197
192	Combahee Acid Phosphate	16.14	2.95	8.86	4.33	13.19	0.36	20 22	10.00	1.00	16 20	192
66	Cranston's Acid Phosphate	14.78	1.71	10.49	2.58	13.07	....	19 61	12.00	....	18 00	66
229	Dambmann's Pure Dissolved South Carolina Bone	12.11	1.98	7.03	3.10	10.13	....	15 20	11.00	....	16 50	229
101	Diamond Acid Phosphate	13.50	0.98	10.97	1.55	12.52	....	18 78	13.00	....	19 50	101
247	Duncan's Acid Phosphate	10.49	1.37	6.27	2.85	9.12	5.42	20 18	4.50	4.00	11 55	247
218	Duncan's Phosphate	10.10	1.16	6.92	2.02	8.94	4.55	18 87	8.00	4.00	16 80	218
8	Edisto Acid Phosphate	11.10	1.77	6.13	3.20	9.33	2.98	17 58	10.50	1.50	17 55	8
138	Edisto Acid Phosphate	11.52	1.33	7.51	2.68	10.19	1.38	16 95	10.00	1.00	16 20	138
72	Edisto Acidulated Rock	16.25	2.84	9.92	3.49	13.41	....	20 12	13.00	....	19 50	72
32	Etiwan Acid Phosphate	14.36	2.23	7.96	4.17	12.13	0.85	19 22	10.00	1.00	16 20	32
54	Etiwan Dissolved Bone	14.15	1.90	7.39	4.86	12.25	....	18 38	12.00	....	18 00	54
130	Eutaw Acid Phosphate	15.33	2.73	7.99	4.61	12.60	0.23	19 18	10.00	1.00	16 20	130
150	Furman's Formula Chemicals	11.87	1 25	8.82	1.80	10.62	3.81	20 50	10.00	3.00	18 60	150
4	Georgia Chemical Works Acid Phosphate for Composting	13.40	2.93	7.85	2.62	10.47	1.82	17 89	10.00	1.00	16 20	4
17	Huiet's Alkaline Acid Phosphate	14.88	2.39	10.13	2.36	12.49	....	18 74	13.00	....	19 50	17
184	Hyman & Dancy's Acid Phosphate	13.28	Trace	5.53	7.75	13.28	....	19 92	12.00	....	18 00	184
167	Jones & Robertson's Compound of Acid Phosphate and Potash	11.19	1.50	7.65	2.04	9.69	3.70	18 98	10.00	3.00	18 60	167
83	Lockwood's Acid Phosphate	13.12	1.99	7.15	3.98	11.13	1.46	18 45	10.00	1.00	16 20	83
226	Lockwood's Acid Phosphate	13.85	1.61	9.14	3.10	12.24	1.34	19 97	10.00	1.00	16 20	226

TABLE II, *Continued.*—ACID PHOSPHATES WITH AND WITHOUT POTASH.

SAMPLE NUMBER.	SAMPLE DRAWN.	WHERE DRAWN.	BRAND OF ACID PHOSPHATE.	BY WHOM MANUFACTURED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1884.					
97	February 20	Spartanburg	Accabee Acid Phosphate	Robertson, Taylor & Co	Charleston, S. C	97
199	March 6	Anderson	Anderson Phosphate	Edisto Phosphate Company	Charleston, S. C	199
30	February 1	Marion	Ashepoo Acid Phosphate	Ashepoo Phosphate Company	Charleston, S. C	30
48	February 4	George's	Ashepoo Acid Phosphate	Ashepoo Phosphate Company	Charleston, S. C	48
261	April 12	Bamberg	Ashepoo Bone Ash	Ashepoo Phosphate Company	Charleston, S. C	261
185	March 4	Anderson	Ashley Acid Phosphate	Ashley Phosphate Company	Charleston, S. C	185
59	February 14	Darlington	Ashley Ash Element	Ashley Phosphate Company	Charleston, S. C	59
33	February 2	Orangeburg	Atlantic Acid Phosphate	Atlantic Phosphate Company	Charleston, S. C	33
37	February 1	Marion	Baltimore Soluble Bone	Baltimore Guano Company	Baltimore, Md	37
10	January 30	Trenton	Charleston Phosphate Company's Acid Phosphate	Charleston Phosphate Company	Charleston, S. C	10
81	February 18	Greenville	Cherokee Dissolved Bone	Atlantic Phosphate Company	Charleston, S. C	81
197	March 4	Anderson	Columbia Acid Phosphate	Albert De Leon & Bro	Baltimore, Md	197
192	March 4	Anderson	Combahee Acid Phosphate	Combahee Phosphate Company	Charleston, S. C	192
66	February 8	Appleton	Cranston's Acid Phosphate	R. P. Sibley, General Agent	Augusta, Ga	66
229	March 21	Laurens	Dambmann's Pure Dissolved South Carolina Bone	Dambmann Bros. & Co	Baltimore, Md	229
101	February 20	Spartanburg	Diamond Acid Phosphate	Edisto Phosphate Company	Charleston, S. C	101
247	April 2	Camden	Duncan's Acid Phosphate	Edisto Phosphate Company	Charleston, S. C	247
218	March 19	Union	Duncan's Phosphate	Edisto Phosphate Company	Charleston, S. C	218
8	January 30	Trenton	Edisto Acid Phosphate	Edisto Phosphate Company	Charleston, S. C	8
138	February 26	Lancaster	Edisto Acid Phosphate	Edisto Phosphate Company	Charleston, S. C	138
72	February 13	Greenwood	Edisto Acidulated Rock	Edisto Phosphate Company	Charleston, S. C	72
32	February 1	Marion	Etiwan Acid Phosphate	Etiwan Phosphate Company	Charleston, S. C	32
54	February 13	Cheraw	Etiwan Dissolved Bone	Etiwan Phosphate Company	Charleston, S. C	54
130	February 25	Chester	Eutaw Acid Phosphate	Ashepoo Phosphate Company	Charleston, S. C	130
150	February 28	Rock Hill	Furman's Formula Chemicals	Furman Farm Improvement Co	Atlanta, Ga	150
4	January 30	Trenton	Georgia Chemical Works Acid Phosphate for Composting	Georgia Chemical Works	Augusta, Ga	4
17	January 31	Batesburg	Huiet's Alkaline Acid Phosphate	Edisto Phosphate Company	Charleston, S. C	17
184	March 4	Anderson	Hyman & Dancy's Acid Phosphate	Hyman & Dancy	Norfolk, Va	184
167	February 28	Rock Hill	Jones & Robertson's Compound of Acid Phos. and Potash	Edisto Phosphate Company	Charleston, S. C	167
83	February 18	Greenville	Lockwood's Acid Phosphate	Lockwood & McClintock	New York	83
226	March 21	Laurens	Lockwood's Acid Phosphate	Lockwood & McClintock	New York	226

TABLE II, *Continued.*—ACID PHOSPHATES WITH AND WITHOUT POTASH.

Sample Number.	BRAND OF ACID PHOSPHATE.	PHOSPHORIC ACID.					Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.			Sample Number.
		Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.			Available Phosphoric Acid.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.		
56	Long's Prepared Chemicals	13.47	1.09	9.30	3.08	12.38	2.78	$21 91	12.00	1.80	$20 16	56
143	Merryman's High Grade Acid Phosphate	14.09	0.31	11.98	1.80	13.78	....	20 67	12.00	....	18 00	143
220	Middleton's (J. I. & Co.) Acid Phosphate	16.39	2.83	8.48	5.08	13.56	....	20 34	14.20	....	21 30	220
219	Middleton's (J. I. & Co.) Potash Mixture	8.02	0.99	4.23	2.80	7.03	6.09	17 86	13.28	....	19 92	219
19	Navassa Acid Phosphate	12.13	1.82	6.33	3.98	10.31	1.83	17 67	10.00	1.00	16 20	19
204	Orchilla Guano	18.52	8.50	0.00	10.02	10.02	....	15 06	16.00	....	24 00	204
216	Oriole Acid Phosphate	12.90	1.06	8.78	3.06	11.84	1.36	19 39	10.00	1.60	16 92	216
210	Our Acid Phosphate (Atlantic and Virginia Co.)	17.08	3.28	9.39	4.41	13.80	....	20 70	10.00	....	15 00	210
40	Pacific Dissolved Bone Phosphate	15.61	2.96	9.63	3.02	12.65	....	18 98	10.00	....	15 00	40
105	Palmetto Acid Phosphate	15.53	2.26	8.64	4.63	13.27	0.20	20 15	10.60	1.00	16 20	105
11	Pelican Acid Phosphate	11.81	1.34	7.33	3.14	10.47	1.77	17 83	10.00	1.00	16 20	11
194	Peruvian Acid Phosphate	16.11	2.74	9.05	4.32	13.37	0.29	20 41	10.00	1.00	16 20	194
173	Pomona Acid Phosphate	13.98	3.08	8.44	2.46	10.90	1.41	18 04	10.00	1.00	16 20	173
120	Seal, Lawson & Kessler's Acid Phosphate	12.92	0.17	11.33	1.42	12.75	....	19 13	14.00	....	21 00	120
7	Stono Acid Phosphate	13.02	2.84	6.87	3.31	10.18	1.25	16 77	10.00	1.00	16 20	7
13	Stono Dissolved Bone	14.75	1.44	10.58	2.73	13.31	....	19 97	13.00	....	19 50	13
135	Wagener's Acid Phosphate	13.32	3.29	5.42	4.61	10.03	1.18	16 47	10.50	1.50	17 55	135
22	Wando Acid Phosphate	14.53	4.00	6.96	3.57	10.53	1.00	17 00	10.00	1.00	16 20	22
45	Wilcox, Gibbs & Co.'s Superphosphate	10.09	0.95	4.22	4.92	9.14	3.67	18 11	9.00	3.00	17 10	45
156	York's Favorite Acid Phosphate	13.29	2.28	7.29	3.72	11.01	0.50	17 12	10.00	1.00	16 20	156
20	Zimmermann's Phosphate	9.58	2.20	5.30	2.06	7.38	6.43	18 79	5.00	6.50	15 30	20

TABLE II, *Concluded.*—ACID PHOSPHATES WITH AND WITHOUT POTASH.

SAMPLE NUMBER.	SAMPLE DRAWN.	WHERE DRAWN.	BRAND OF ACID PHOSPHATE.	BY WHOM MANUFACTURED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1884.					
56	February 13	Cheraw	Long's Prepared Chemicals	Long & Dugdale	Baltimore, Md	56
143	February 27	Newberry	Merryman's High Grade Acid Phosphate	John Merryman & Co.	Baltimore, Md	143
220	March 21	Laurens	J. I. Middleton & Co.'s Acid Phosphate	J. I. Middleton & Co.	Baltimore, Md	220
219	March 21	Laurens	J. I. Middleton & Co.'s Potash Mixture	J. I. Middleton & Co.	Baltimore, Md	219
19	January 31	Batesburg	Navassa Acid Phosphate	Navassa Guano Company	Wilmington, N. C.	19
204	March 8	Johnston	Orchilla Guano	Travers, Snead & Co., Importers	Richmond, Va	204
216	March 14	Spartanburg	Oriole Acid Phosphate	Symington Bros. & Co.	Baltimore, Md	216
210	March 11	Greenville	Our Acid Phosphate (Atlantic and Virginia Company)	Atlantic and Virginia Fert. Co.	Orient, L. I.	210
40	February 11	Marion	Pacific Dissolved Bone Phosphate	Pacific Guano Company	Charleston, S. C.	40
105	February 22	Yorkville	Palmetto Acid Phosphate	Ashepoo Phosphate Company	Charleston, S. C.	105
11	January 30	Trenton	Pelican Acid Phosphate	Dowie & Moise	Charleston, S. C.	11
194	March 4	Anderson	Peruvian Acid Phosphate	Ashepoo Phosphate Company	Charleston, S. C.	194
173	February 28	Rock Hill	Pomona Acid Phosphate	Perry M. DeLeon	Savannah, Ga	173
120	February 22	Yorkville	Seal, Lawson & Kessler's Acid Phosphate	Seal, Lawson, Kessler & Co.	Baltimore, Md	120
7	January 30	Trenton	Stono Acid Phosphate	Stono Phosphate Company	Charleston, S. C.	7
13	January 31	Johnston	Stono Dissolved Bone	Stono Phosphate Company	Charleston, S. C.	13
135	February 26	Lancaster	Wagener's Acid Phosphate		Charleston, S. C.	135
22	January 30	Sumter	Wando Acid Phosphate	Wando Phosphate Company	Charleston, S. C.	22
45	February 4	George's	Wilcox, Gibbs & Co.'s Superphosphate	Wilcox, Gibbs & Co.	Charleston, S. C.	45
156	February 28	Rock Hill	York's Favorite Acid Phosphate	Stono Phosphate Company	Charleston, S. C.	156
20	February 2	St Matthew's	Zimmerman's Phosphate	Edisto Phosphate Company	Charleston, S. C.	20

TABLE III.—MISCELLANEOUS.

BRAND.	Nitrogen	Equivalent to Ammonia.	Potash.	Equivalent to Sulphate of Potash.	COMMERCIAL VALUE PER 2,000 LBS.	MANUFACTURERS' MINIMUM GUARANTEE. Ammonia	MANUFACTURERS' MINIMUM GUARANTEE. Potash.	MANUFACTURERS' MINIMUM GUARANTEE. Equivalent to Sulphate of Potash.	COMMERCIAL VALUE.	SAMPLE NUMBER.
	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
Kainit	....	....	13.14	24.29	$ 15 77	....	10.82	20.00	$ 12 98	3
Kainit	....	....	14.35	26.43	17 22	....	12.44	23.00	14 93	24
Kainit	....	....	13.36	24.70	16 03	....	13.52	25.00	16 22	29
Kainit	....	....	14.39	26.60	17 27	....	12.44	23.00	14 93	43
Chem'ls—Boykin, Carmer&Co	9.75	11.84	7.01	....	40 40	10.00	7.00	....	38 60	73
" " " "	16.62	20.18	4.99	....	111 75	14.00	4.00	....	49 60	74
Kainit	....	....	14.68	27.14	17 62	....	12.00	22.18	14 40	104
Kainit	....	....	11.78	21.78	14 14	....	11.00	20.34	13 20	107
Kainit	....	....	13.22	24.44	15 86	....	12.44	23.00	14 93	121
Kainit	....	....	12.26	22.67	14 71	....	12.44	23.00	14 93	123
Kainit	....	....	13.40	24.77	16 08	....	12.44	23.00	14 93	162

TABLE III, *Continued.*—MISCELLANEOUS.

SAMPLE DRAWN.	WHERE DRAWN.	BRAND.	BY WHOM MANUFACTURED OR IMPORTED.	WHERE MANUFACTURED.	SAMPLE NUMBER.
1884.					
January 30th	Trenton	Kainit	Georgia Chemical Works	Augusta, Ga	3
January 31st	Florence	Kainit	John Kuker, Agent	Florence, S. C	24
February 1st	Marion	Kainit	Kerchner & Calder Bros	Wilmington, N. C	29
February 2d	Orangeburg	Kainit	Stono Phosphate Company	Charleston, S. C	43
February 14th	Hodges	Chemicals	Boykin, Carmer & Co	Wilmington, N. C	73
February 14th	Hodges	Chemicals	Boykin, Carmer & Co	Wilmington, N. C	74
February 22d	Yorkville	Kainit	Wando Phosphate Company.	Charleston, S. C	104
February 22d	Yorkville	Kainit	Ashepoo Phosphate Company	Charleston, S. C	107
February 22d	Yorkville	Kainit	Ashley Phosphate Company	Charleston, S. C	121
February 22d	Yorkville	Kainit	Chemical Co. of Canton	Baltimore, Md	123
March 1st	Winnsboro	Kainit	Davie & Whittle	Petersburg, Va	162

[illegible] with and
without ~~[illegible]~~ [illegible]

For the sake of comparison are given below the average compositions during the last three seasons of each of the above classes, together with their average commercial valuations, and the valuations of each constituent during the same period:

Rates of Commercial Valuation in Cents per Pound.

SEASON OF	1881–82.	1882–83.	1883–84.
Soluble Phosphoric Acid	12½	10	7½
Reduced Phosphoric Acid	10		
Ammonia	25	25	16
Potash.	6	6	6

Acid Phosphates.

SEASON OF	1881–82.	1882–83.	1883–84.
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	8.08	8.56	8.59
Reduced Phosphoric Acid	3.46	2.52	4.06
Available Phosphoric Acid	11.54	11.28	12.65
Insoluble Phosphoric Acid	2.70	2.47	2.20
Total Phosphoric Acid	14.24	13.75	14.85
Commercial value per 2,000 lbs.	$27 12	$22 56	$18 98

Acid Phosphates with Potash.

SEASON OF	1881–82.	1882–83.	1883–84.
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	7.05	7.35	7.24
Reduced Phosphoric Acid	3.49	2.83	3.53
Available Phosphoric Acid	10.54	10.18	10.77
Insoluble Phosphoric Acid	2.62	2.45	2.22
Total Phosphoric Acid	13.16	12.63	12.99
Potash	1.60	1.55	1.94
Commercial value per 2,000 lbs.	$26 53	$22 22	$18 49

Ammoniated Acid Phosphates.

SEASON OF	1881–82.	1882–83.	1883–84.
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	7.58	6.39	7.40
Reduced Phosphoric Acid	2.35	2.84	2.82
Available Phosphoric Acid	9.93	9.23	10.22
Insoluble Phosphoric Acid	2.00	2.95	2.05
Total Phosphoric Acid	11.93	12.18	12.27
Ammonia	2.82	2.77	3.01
Commercial value per 2,000 pounds	$37 75	$32 31	$24 96

Complete Fertilizers.

SEASON OF	1881–82.	1882–83.	1883–84.
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	6.18	5.60	6.06
Reduced Phosphoric Acid	2.70	2.57	2.91
Available Phosphoric Acid	8.88	8.17	8.97
Insoluble Phosphoric Acid	2.44	2.64	2.34
Total Phosphoric Acid	11.32	10.81	11.31
Ammonia	2.72	2.63	2.77
Potash	1.74	1.53	1.53
Commercial value per 2,000 pounds	$36 54	$31 33	$24 16

Kainits.

SEASON OF	1881–82.	1882–83.	1883–84.
	P. C.	P. C.	P. C.
Potash	14.40	12.84	13.40
Commercial value per 2,000 pounds	$17 28	$15 41	$16 08

A consideration of the figures given above, would seem to justify the change made in the Regulations at the beginning of the last season, in abolishing the twenty-five (25) per cent. margin previously allowed in branding the guaranteed analysis on the bags and replacing this with the minimum guaranteed analysis only.

The Regulations allowing the twenty-five (25) per cent. margin were not issued till December 12th, 1881—so late as to have but little effect on the trade of the season of 1881–82; but as no changes were made in these Regulations in the following season of 1882–83, their full effect was felt.

The Regulations of last season (1883–84) abolishing the twenty five (25) per cent. margin were issued in time to meet with compliance from nearly all the manufacturers, and the full effect of the change may be claimed to have been felt.

Now, an examination of the figures in the above tables will show that the average analyses fell off during the season of 1882–83, while the full effect of the twenty-five per cent. margin was felt, but during the last season (1883–84) reached a higher point even than in 1881-82.

In comparing the commercial values given in the above tables, care must be taken not to overlook the fact that there has been a steady diminution in the commercial values assigned in successive seasons to the different fertilizer ingredients.

AVERAGES OF MANUFACTURERS' GUARANTEES.

Season 1883–84.

ACID PHOSPHATES.

	P. C.
Available Phosphoric Acid	12.48
Commercial value per 2,000 pounds	$18 72

ACID PHOSPHATES WITH POTASH.

	P. C.
Available Phosphoric Acid	9.44
Potash	1.64
Commercial value per 2,000 pounds	$16 13

AMMONIATED ACID PHOSPHATES.

	P. C.
Available Phosphoric Acid	9.20
Ammonia	2.04
Commercial value per 2,000 pounds	$20 33

COMPLETE FERTILIZERS.

	P. C.
Available Phosphoric Acid	7.46
Ammonia	2.08
Potash	1.31
Commercial value per 2,000 pounds	$19 42

After 15 minutes add 30 c.c. of ammonia solution of density 0.96. Let stand several hours. (Two hours are usually enough.) Filter; wash with dilute ammonia; ignite intensely for ten minutes and weigh.

5. CITRATE-SOLUBLE PHOSPHORIC ACID.—The sum of the water-soluble and citrate-insoluble substracted from the total gives the citrate-soluble.

PREPARATION OF REAGENTS.

1. TO PREPARE AMMONIUM CITRATE SOLUTION.—Mix 370 grams of commercial citric acid with 1500 c.c. of water; nearly neutralize with crushed commercial carbonate of ammonia 410 grams; heat to expel the carbonic acid; cool; add ammonia until exactly neutral (testing for excess both of acid and alkali by aid of delicate red and blue litmus papers), and bring to volume of two liters. Dilute further until the density is 1.09 as tested by the balance or *accurate* specific gravity spindle.

2. TO PREPARE SOLUTION OF MAGNESIUM NITRATE.—Dissolve 320 grams of "calcined magnesia" in nitric acid, avoiding excess of the latter; then add a little "calcined magnesia" in excess and boil; filter from the excess of magnesia, ferric oxide, &c., and bring to volume of two liters.

3. TO PREPARE MOLYBDIC SOLUTION.—Dissolve 100 grams of molybdic acid in 400 grams, or 417 c.c. of ammonia of sp. gr. 0.96, and pour the solution thus obtained into 1500 grams or 1250 c.c. of nitric acid of sp. gr. 1.20. Keep the mixture in a warm place for several days, or until a portion heated to 40°C. deposits no yellow precipitate of ammonium phospho-molybdate. Decant the solution from any sediment, and preserve in glass-stopped vessels.

4. TO PREPARE AMMONIUM NITRATE SOLUTION.—Dissolve 200 grams of commercial ammonium nitrate in water and bring to a volume of two liters.

5. TO PREPARE MAGNESIA MIXTURE.—Dissolve 22 grams of recently ignited "calcined magnesia" in dilute hydrochloric acid, avoiding excess of the latter. Add a little "calcined magnesia" in excess and boil a few minutes to precipitate iron, alumina and phosphoric acid; filter; add 280 grams of ammonium chloride, 700 c.c. of ammonia of sp. gr. 0.96 and water enough to make the volume of two liters. Instead of the solution of 22 grams of "calcined magnesia," 110 grams of crystallized magnesium chloride ($MgCl_2 . 6H_2O$.) may be used.

6. DILUTE AMMONIA FOR WASHING.—One volume ammonia of sp. gr. 0.96 mixed with three volumes of water, or, *usually*, one volume of concentrated ammonia with 6 volumes of water.

SEPARATION AND DETERMINATION OF POTASH IN COMMERCIAL FERTILIZERS.

Boil 10 grams of the fertilizer with 5 c.c. strong hydrochloric acid and 300—400 c.c. of water for ten minutes. Cool the solution, and, without filtering, make it up to 1000 c.c.; mix thoroughly, and filter through a dry filter.

Take an aliquot corresponding to 0.5 or 1.0 gram, dilute if necessary to about 150 c.c. heat to boiling, and precipitate the sulphuric acid with a slight excess of barium chloride solution. Without filtering add an excess of barium hydroxide, and heat again to boiling. Filter and wash, at first by decantation, till the washings are free from chlorides. Heat the filtrate nearly to boiling and precipitate the barium salts with ammonium carbonate and a little ammonia solution. Filter and wash; evaporate filtrate and washings to dryness, and ignite *below a red heat* till the ammonium salts are removed and the organic matter is oxidized as completely as possible. The residue, consisting of chlorides of potassium, and sodium, with some charcoal and possibly a little barium salt which escaped precipitation, is digested with hot water; a few drops of ammonium carbonate are added, and the solution filtered and washed. The filtrate and washings are again evaporated to dryness and ignited gently.

The mixed chlorides are dissolved in water, an amount of platinum tetra-chloride solution is added more than sufficient to form the double salt with all the potash and *soda* present, and the solution is evaporated at or below 100°C. so nearly to dryness that it becomes solid on cooling. To the cold mass 10—20 c.c. of strong alcohol (80 p. c.-95 p. c.) are added and the mass is well broken up with a stirring rod or pestle. After standing 5-10 minutes the supernatant liquid, which must have a reddish color from excess of platinum tetra-chloride, is poured on a filter; more alcohol is added to the mixture of the double salts, and the whole stirred and pulverized and washed by decantation until the washings are perfectly colorless.

The precipitate is then brought on the filter by means of a wash bottle containing alcohol. The salt is dried at 100°C. and weighed. After weighing, the salt is dissolved from the filter with hot water and the filter is dried and weighed together with any platinum which may have been reduced in drying down the solution with platinum tetrachloride, or other impurities.

The actual potash is reckoned from the weight of the double chloride of potassium and platinum by multiplying by 0.19308.

Potassium chloride is reckoned from the double salt by multiplying by 0.3056. These factors are based on the following atomic weights:

Platinum	197.18	Chlorine	35.46
Potassium	29.13	Oxygen	16.00

NITROGEN DETERMINATION.

As no method of determining nitrogen was adopted by the Association, the copper oxide method will be used as in previous seasons.

I have the honor to be, very respectfully,

PHILIP E. CHAZAL, E. M.,
Chemist.

PHOSPHATE DEPARTMENT.

As our former Reports have dealt so fully with the phosphate interests, it is deemed only necessary now to report the operations of the department for the past year.

In our last Annual Report we said:

"In the Annual Report of 1882 we alluded to steps that had been taken to ascertain the right and interest of the State in certain disputed territory and for the recovery of any royalty that legal investigations might show to be due, and the matter has been pressed vigorously by the able counsel retained to represent the State. The Special Assistant's report contains very full information on the present status of the cases.

"All litigation, of even a trifling nature, is expensive, and when it nvolves large interests between the State and wealthy corporations the expense is correspondingly increased; and while this fact was realized by the members of the Board of Agriculture, they felt that, in a matter involving interests of such magnitude, they had no discretion. By Acts of the Legislature the whole duty of protecting the rights of the State in the phosphate territory has been devolved upon the Department of Agriculture; and when it was found, after proper and careful investigation, that the State was being deprived of its revenue and its territory was being trespassed upon, they immediately took steps to stop it and prevent its recurrence in the future. In doing this, however, it has been necessary to draw heavily on the fund collected for the support and maintenance of the Agricultural Department, and has to some extent crippled the operations of the Department for the present year.

We do not believe that the Legislature, in transferring these duties to this Department, expected that it would require so large a portion of the fund of the Department to enforce the rights of the State; but after the duty was imposed the Board could not hesitate to execute the laws as they found them, and rely upon the Legislature to make some provision for the reimbursement to the Department of the amount expended, when it was shown that they had acted as the law directed. As will be explained more fully hereafter, the Department has recovered $4,983.46 of royalty that, but for the investigations made by the Board and Commissioners, would not have been paid. But, besides recovering this amount, the principle has been established that will give an annual increase of royalty upon the rock mined by a single company. The amount recovered has, however, been paid directly into the State Treasury and applied to the general expenses of the Government, *and no part of it has been available for the use or benefit of the Agricultural Department.*

The Department is supported exclusively by the tax on commercial fertilizers, and the amount of this tax is always uncertain, from the fact that it depends upon the sales of fertilizers, and the amount of these sales can never be definitely known until after the season has closed. But for the past four years it has been ample for all the ordinary expenses of the Department, and by strict economy we were able to accumulate a balance for enlarging the future operations of the Bureau in its various branches. This balance has been exhausted by the phosphate litigation and other unusual expenses, which are explained more fully in another part of this Report.

We think, therefore, considering all the circumstances, that all the expenses incurred in this litigation should be paid back to the Department from the phosphate royalty.

The general rights license held by T. W. Carwile has been revoked.

REPORT OF SPECIAL ASSISTANT.

DEPARTMENT OF AGRICULTURE,
State of South Carolina,
Office of Special Assissant,
Charleston, S. C., November 1st, 1884.

Hon. A. P. Butler, *Commissioner of Agriculture, Columbia, S. C.*

Sir: I have the honor to submit the following as the Report of the duties performed by me as Special Assistant of the Department during the current year ending 31st of October, 1884:

Condition of the Phosphate Trade.

The market for rock during the past year did not prove as good as was anticipated when the last report was presented.

The short crops, not only in this country, but also in Europe, and more especially in the United Kingdom, had a depressing tendency. On the other hand, the new mines opening and the greater activity in those already in operation were found to increase so largely the supply that the market became overstocked. To remove in some degree this difficulty, the land companies entered into an agreemnet among themselves to curtail their several productions so as to bring the supply more into proportion to the demand. This has afforded some little relief. None of the marine companies, however, are parties to this arrangement, but continue to produce as they see fit, and, in addition, Messrs. Hume Bros. & Co. have procured, and a new company (the Phosphate Mining Company, limited,) propose procuring, large dredges for the purpose o digging on an extensive scale. Should these apparatus prove successful and anything like the quantity of rock they anticipate be produced, the result can only be to demoralize the market and it would be difficult to find sales for it. The outlook, therefore, just now is extremely uncertain. If the production is confined to its present limits, the prospect would be for a quiet market, with a moderate, firm demand.

It is a question for the serious consideration of those in charge of the interest of the State in these phosphate deposits, how far it would be advisable for them to take steps to limit the production of rock from the rivers. That there is reason for such a step the action of the land companies conclusively shows. If, by indiscriminate over-production, the price of rock should fall away to unremunerative prices, as there seems every probability, the result would not only be disastrous to those directly engaged, but extremely injurious to the interest of the State. Added to which, this consideration must be borne in mind: that the supply of marketable rock in the State's territory is by no means inexhaustible. It is, therefore, another serious question how far the true interests of the State are subserved in any view of the case, by exhausting too rapidly these valuable deposits; if, in addition, the result is to break down the market, the question becomes a very grave one indeed. I deemed this matter of so much importance, that I bring it thus officially before you, and ask for it your careful consideration.

Operations for the Past Year.

The total number of tons of rock sold and removed during the fiscal
year ending 31st of August, 1884, is .... 151,243$\frac{560}{2240}$ tons.
As against for last year is .... 129,318$\frac{810}{2240}$ "
An increase of .... 21,925$\frac{250}{2240}$ "

The total amount of royalty received by the State for the fiscal year
ending August 31, 1884 .... $153,797 62
As against for last year 125,793 14
An increase of 28,004 48

Of this amount, companies working under exclusive rights have paid $104,010.34, and those working under general rights have paid $49,787.28. The detailed amounts are as follows:

Exclusive Rights Companies.

Coosaw Mining Company	$89,626 42	
Oak Point Mines Company	1,155 00	
South Carolina Phosphate Co. (Limited.)	6,960 52	
Palmetto Phosphate Company	1,758 00	
Farmers' Phosphate Company	4,510 40	$104,010 34

General Rights Companies.

Sea Island Chemical Company	$33,683 10	
David Roberts	7,771 80	
Hume Bros. & Co	4,137 00	
C. O. Campbell	160 50	
James M. Crofut	260 00	
J. D. & J. Seabrook	218 13	
D. W. Ebaugh	1,304 50	
Willis Wilkinson	1,006 75	
Jos. G. Taylor	588 00	
J. L. O'Hear	448 50	
Tiedeman & Venning	209 00	$49,787 28
Total royalty paid		$153,797 62

Royalty is due and uncollected upon rock mined and shipped during the past year by

The Marine and River Phosphate Company	$13,805 00
Jos. W. Seabrook	296 00
J. D. & J. Seabrook	114 50
Royalty due	$ 14,215 50
Add royalty paid	153,797 62

Of the rock sent to market this year, there has been shipped to

Foreign ports	117,520	tons.
Domestic ports	33,723½	"
Total shipped	151,243½	tons.

Suits for Royalty Due.

As heretofore reported, the claims of the State for unpaid royalty against C. O. Campbell and W. M. Hale were placed in the hands of W. St. Julien Jervey, Esq., Solicitor of the First Circuit, for collection. In the case of C. O. Campbell judgment has been recovered against C. O. Campbell himself and Otis Phillips, one of the sureties on his bond. The other surety, George Addison, being dead, and the time in which suit could be brought after his death not having then arrived, no action could be instituted against his executors.

During this period, however, a proposition to pay one-half of the amount due was made and accepted by the Board, and the remaining half left open for the present. The amount offered was duly paid.

In the case against W. M. Hale, judgment has been recovered against W. M. Hale himself and Edward Willis, one of the sureties on his bond. The other surety, W. R. Wheelock, having shortly before the action died, his executors could not be joined. Suit has since then been instituted against the executors and trustees under the will of W. R. Wheelock. They have put in an answer resisting the claim of the State, and the causes now at issue for trial.

In the case of the Marine and River Phosphate Company, the claim of the State for royalty amounts to $13,805. This has been placed in the hands of the Attorney General, as is more fully stated later on in this Report.

Suits Against Trespassers.

In the case of the State *vs.* the Pacific Guano Company, Judge Wallace rendered his decree on the 2d of February, 1884. In it he sustains the right of the State to the soil in the beds of Horse Island Creek, Palmer's Creek and South Wimbee Creek, holding them to be the property of the State of South Carolina. These are the creeks reported to the Legislature from time to time as, in the opinion of the Board, State property. Two other creeks, which were included in the complaint, he holds are not navigable. He decides that the trespass of the company in the creeks was not willful, and that the true measure of damage is the difference between the market price of the rock mined by the Company and the expense incurred in such operation. He orders a reference to S. Hyde, Jr., as Referee, to inquire what quantity of phosphate rock had been taken from the beds of said creeks and converted to the use of the defendants, and the value of the same in its natural state and position, and that the State have judgment for such amount.

From this decree an appeal was taken to the Supreme Court, where the case was argued on the 26th of May last. No decision has yet been announced. If the decree of Judge Wallace be sustained, and no more, then the ownership of the State in the creeks in question will be established and the company will be liable to pay whatever is found to be the value, in its natural state and position, of the phosphate rock ascertained to have been removed from the localities so held to belong to the State. It is impossible now to give any exact estimate of what this will be.

In the case *vs.* C. C. Pinckney, Jr., and H. B. Davis, in reference to the Morgan Island marshes, Judge Wallace rendered his decree on the 21st of May, 1884. This decree awards to the State all the territory in dispute except a tract of about 120 acres, which it was found had been granted away by the State. On the question of damages, he holds that there must be a further inquiry. From this decree an appeal has been taken to the Supreme Court, and the case is now pending before that tribunal.

Marine and River Phosphate Company.

The facts concerning the operations of this company were fully set forth in the last report. Since then the company has been entirely broken up. During last Winter they discontinued operations on their own account, and rented their dredging apparatus to Mr. David Roberts, by whom it was operated in Bull and Morgan Rivers. The company, however, being heavily involved, certain of their creditors instituted proceedings in the United States Court, under which all their dredges were seized. After a protracted litigation, these vessels were sold under decree of the United States Court, and were bought by outside parties and are not now at work. In the course of the proceedings a call was made for all the creditors of the company to prove their claims before Judge Pringle as Referee. Acting under your instructions, I placed in the hands of Hon. Chas. Richardson Miles, Attorney General, the mortgage held by the State to secure its royalty, amounting to $13,805, as per following statement:

Statement of phosphate rock dug, mined and removed by the Marine and River Phosphate Company, from the 1st of September, 1881, to 30th November, 1883, as per their returns on file in my office:

Amount of rock mined	17,620 tons.
Amount of rock removed	10,372 tons.
Rock on hand 30th November, 1883	7,248 tons.

Royalty unpaid on rock removed	$6,557
Royalty due on rock on hand	7,248
	$13,805

This claim was duly proved before the Referee.

In addition to the mortgage so held, the State holds also the royalty bond, originally given by the company to secure the payment of the royalty.

There is also another suit pending against the stockholders of the company to enforce their liability for the debts of the corporation.

These proceedings embrace all creditors. What will be the result it is impossible now to say, as a serious question is made as to the extent of the stockholders' liability. All operations on the part of the company have ceased, and, as all its plant and machinery have been sold, it may be considered extinct. The only interest the State now has, is in the amount of royalty due, and this claim, as before stated, is in the hands of the Attorney General.

All of which is respectfully submitted.

E. L. ROCHE, Special Assistant.

FISH COMMISSION.

OFFICE OF THE SUPERINTENDENT OF FISH AND FISHERIES,
COLUMBIA, S. C., October 31, 1884.

Hon. A. P. BUTLER, *Commissioner of Agriculture.*

SIR: In submitting this, the Fifth Annual Report of the work done by the Fish Commission, I deem it unnecessary to present in detail what has been done in a preliminary way looking to a fuller development of the important and growing work that you have in hand, and will, therefore, note briefly the actual work accomplished.

The usual season's work on Edisto River began about the 1st of March and closed April 5. With five trusty assistants all the shad nets on the river, numbering about forty, and fishing 10 to 15 miles along the river, were closely attended, and all the fish caught handled carefully, which resulted in a take of 440,200 eggs.

The tin cones that were formerly used were discarded and twelve McDonald hatching jars substituted, which worked beautifully and gave a larger per cent. of fry than any apparatus ever before in use. The jars are made of glass, and so adjusted as to admit of the removal of all dead eggs as soon as developed, which leaves the healthy ones free from the contaminating influence of what would otherwise prove fatal. The fry as fast as hatched are taken through overflow tubes and deposited in clean tanks prepared for their reception. The jars being of glass, the hatching can be carefully noted at every stage of development, and an accurate count made of eggs before placed in the jars and just before the fry leave the shell, so a more correct count can be made of the number of fish released in the use of these jars than in any other way. The eggs are carefully measured before placed in the jars and recorded at 20,000 to the quart (which I have ascertained to be correct by actual count). They are then carefully attended, and by the time the fish are ready to be released from the shell all dead have been removed and the contents of the jars is a living mass. The water is then shut off and the eggs allowed to settle, when they are again measured, which gives the actual number of fish ready to be released from the shell. With due respect for past counts by the old and unreliable mode of estimating the losses, and deducting from the whole, I must say that the actual number of fish can be more nearly arrived at in this way, and that the bulk released is greater. From the 440,200 eggs taken, we released in the finest possible condition 334,000 fry in the waters of Edisto, near Williston.

On application to Prof. Baird, United States Fish Commissioner, he kindly sent to this State a shipment of young shad, which were placed in tributaries of Savannah River.

As has been stated in previous Reports, the number of shad eggs to be obtained in our own waters are far short of the numbers necessary to a speedy recuperation of our streams, and while the United States Fish Commission has responded promptly to our calls upon it for help, these are so numerous from all over the country that we cannot look for more from it, but should make an effort to collect eggs outside of the State where it is practicable. Last Spring while in Washington, I received information that would have enabled us to collect and ship to South Carolina a large number of eggs, but not having the means at my command, was unable to accomplish anything.

German Carp.

The success that our people have met with in the cultivation of this fish in our waters has been all that could have been desired, and is such as to have more than doubled the demand each year since the first were distributed. At the time of distribution the past year, there was on file over one thousand applications, coming from every County in the State. Of this, eight hundred and sixty-four were shipped; ninety-two receiving 16 fish each, and seven hundred and seventy-two receiving 20 each, as is shown in tabular statement; making a total of 16,912.

We are indebted to the United States Commissioner for something over thirteen thousand of this number, thirty-five hundred having been obtained from the State ponds.

The greater number of the applications have come from the upper Counties, and from localities where the success of individuals with the carp has clearly demonstrated the results to be obtained. There are many who have lost the fish sent them by insecure dams—but the fish lost to them have helped stock the public waters, which fact is attested by reports from different parts of the State, showing that carp are becoming common in our rivers.

Knowing the merits of this fish and the ease and comparatively small cost with which it can be propigated, it seems to me that no more profitable expenditure of money could be made than to construct large ponds in some suitable place on some of the rice fields of the State, which would insure annually large numbers of young fish with which to stock the public waters. Mention of this was made in the last Annual Report by your Superintendent, and subsequently an inspection made of what he deemed a place suitable in every respect for the purpose, and a full report submitted to the Board of Agriculture. The report was received by the Board, but action was postponed for future consideration.

I would again call it to your attention, and urge that the work be done before another season. We now have in the State ponds fish enough to stock twenty acres, and produce sufficient fry to supply all applications for private ponds, and give to each County in the State several thousand for public waters.

Fish-Ways.

The problem of effective fish-ways has received the attention of Fish Commissioners throughout the United States for some time past and seems to have been at last settled by the invention of Col. M. McDonald, of Virginia. He has recently perfected a way that promises to give entire satisfaction, and is, in fact, in successful operation in many of the States, two having been put up by the South Carolina Commission, as reported in the last Report. Both were inspected by Col. McDonald in person and said to be properly constructed. Their efficiency has been greatly impaired, however, for need of repairs and proper attention on the part of dam owners. The Commissioner, under the law, can only enforce the law in regard to fish-ways through the County Commissioners, and without their co-operation he is powerless. Could this be so altered as to allow him power to deal directly with the parties themselves, it would greatly facilitate matters and the object in view be attained, which, otherwise, is practically impossible.

The fish-way at Augusta, Ga., which was being constructed at the time of my last report, only needs attention to be entirely efficient. Mr. H. H. Townes, who lives on the river near the way, in writing to the Augusta paper about the fishing at the locks, says: "The fish-way is a success, for fish can and do ascend it."

While the Savannah River is controlled entirely by Georgia, the charter obtained by the Edgefield Cotton and Woolen Manufacturing Company to construct a dam across the river to the South Carolina side provides that a free passage for fish shall be left in the river. Under this charter we claimed the right of a fish-way, which we now have in operation at the expense of the city of Augusta, which now owns the dam. South Carolina cannot prevent the fishing which is being done at the foot of the way, and which will make it useless unless prohibited.

I would therefore take this opportunity to call on the authorities of Georgia for their co-operation in this work, and to see that the work already done by this State is not rendered useless by illegal fishing.

It has been deemed best that the general construction of fish-ways throughout the State, as required by law, should be postponed until we could with some certainty put up such a one as we could reasonably expect to work. This we find in the McDonald way, and will take the necessary steps during the coming year to secure ways wherever needed.

In conclusion, I would say that the attention of your Superintendent has been given entirely to the exhibit now in course of preparation for the New Orleans Exposition since the 1st of June, and that the work herein reported was done previous to that time.

All requests for free transportation of men and cans have been promptly granted by the officials of the several railroads throughout the State, and our efforts greatly facilitated by them, for which we herewith tender our sincere thanks.

I am your obedient servant,
C. J. HUSKE,
Superintendent Fish and Fisheries.

Receipts and Disbursements of Fish Commissioner from November 1, 1883, to October 31, 1884.

For Transportation,	Voucher 1		$ 69 75
" Improvements,	" 2		67 39
" Assistance,	" 3		240 14
" Subsistence,	" 4		193 03
" Telegrams, Postage, &c.,	" 5		1 48
" Sundries			254 09
Received—			
From A. P. Butler, Commissioner Agriculture		$594 58	
" Sale of Shipping Buckets		209 40	
Due C. J. Huske		21 90	
		$825 88	$825 88

RECORD OF WEATHER.

DATE.	AIR.			WATER.				SKY.			DIRECTION OF WIND.		
	8 A. M.	12 M.	6 P. M.	R.	8 A. M.	12 M.	6 P. M.	8 A. M.	12 M.	6 P. M.	8 A. M.	12 M.	6 P. M.
1884. March 8	....	69	58	61	....	62	62	....	....	Cloudy.	....	Calm.	Calm.
		Sun	day.										
9	62	91	....	58	60	68	....	Cloudy.	Clear.	....	Calm.	....	Cloudy.
10	43	78	50	58	50	60	63	Clear.	Clear.	Clear.	Calm.	Clear.	Clear.
11	68	86	68	58	60	62	68	Clear.	Clear.	Clear.	S. E.	Windy	Fair.
12	68	88	....	58	63	65	....	Cloudy.	Cloudy.	....	....	Calm.	
13	56	60	54	57	64	64	62	Cloudy.	....	Rain.	Calm.	N. E.	S. E.
14	53	54	54	58	60	60	59	Rain.	Rain.	....	N. W.	N. W.	
15	63	56	54	58	55	60	62	....	Clear.	....	N. W.	Calm.	
		Sun	day.										
16	60	64	62	85	57	58	64	Calm.	Clear.	Clear.	N. W.	Calm.	D. E.
17	68	73	66	59	58	62	64	Cloudy.	Cloudy.	Clear.	S. E.	S. E.	S. E.
18	56	74	70	52	60	68	66	Calm.	Windy.	Cloudy.	S. W.	E.	S. E.
19	66	74	66	......	66	66	68	Cloudy.	Cloudy.	Clear.	S. E.	S. E.	N. W.
20	66	74	70	......	64	66	66	Clear.	Clear.	Clear.	S. W.	S. W.	W.
21	56	72	66	......	65	70	72	Calm.	Clear.	Clear.	S. W.	S. E.	W.
22	53	70	50	62	63	68	70	Clear.	Clear.	Clear.	S. W.	S. W.	W.
		Sun	day.										
23	70	69	70	......	69	72	70	Rain.	Rain.	Cloudy.	S. E.	S. E.	S. E.
24	68	68	75	......	68	70	72	Clear.	Clear.	Clear.	S. E.	S.	S. S. E.
25	66	78	64	......	70	72	68	Clear.	Clear.	Cloudy.	N. W.	N.	S. E.
26	70	76	72	.....	72	72	72	Rain.	Clear.	Clear.	N. W.	S. W.	S. W.

RECORD OF WEATHER.

DATE.		AIR.			WATER.				SKY.			DIRECTION OF WIND.		
		8 A. M.	12 M.	6 P. M.	R.	8 A. M.	12 M.	6 P. M.	8 A. M.	12 M.	6 P. M.	8 A. M.	12 M.	6 P. M.
1884.														
March	27	56	73	64	......	65	69	68	Clear.	Clear.	Calm.	S. W.	N. E.	S. E.
	28	68	73	64	......	69	72	66	Clear.	Clear.	Clear.	N. W.	N. W.	S. E.
	29	65	69	76	72	65	69	70	Clear.	Windy.	Clear.	S. W.	S. W.	N. W.
			Sun	day.										
	30	65	....	....	65	....	....	....	Clear.	....	....	S. W.		
	31	58	68	62	......	58	72	70	Clear.	Clear.	Clear.	W.	S. W.	W.
April	1	56	74	72	......	57	67	70	Clear.	Clear.	Clear.	S. E.	W.	S. E.
	2	66	68	68	......	68	70	70	Cloudy.	Gale.	Cloudy.	E.	E.	N. W.
	3	57	68	....	......	58	70	70	Clear.	Gale.	Cloudy.	N. W.	E.	N. W.

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		ABBEVILLE	COUNTY.			
1883. Nov. 19	Wells, J. W	Greenwood	Greenwood	By Express	By Agent	20
	Calhoun, Orville	Abbeville	Abbeville	By Express	By Agent	20
	Calhoun, Wm. P	Abbeville	Abbeville	By Express	By Agent	20
	Calhoun, W. M	Abbeville	Abbeville	By Express	By Agent	20
	Kennedy, L. N	Lowndesville	Abbeville	By Express	By Agent	20
	Latimer, Joseph M	Lowndesville	Abbeville	By Express	By Agent	20
	Horton, Dr. O. R	Lowndesville	Abbeville	By Express	By Agent	20
	Kay, J. W	Lowndesville	Abbeville	By Express	By Agent	20
	O'Neal, G. P	Greenwood	Greenwood	By Express	By Agent	20
	Law, C. W	Greenwood	Hodges	By Express	By Agent	20
	Merriman, L. D	Greenwood	Greenwood	By Express	By Agent	20
	Crawford, James A	Greenwood	Greenwood	By Express	By Agent	20
	Black, W. K	Greenwood	Greenwood	By Express	By Agent	20
	Hawthorn, O. P	Due West	Donaldsville	By Express	By Agent	20
	Alexander, ——	Due West.	Donaldsville	By Express	By Agent	20
	Robinson, James L	Due West	Donaldsville	By Express	By Agent	20
	Black, James W	Coronaca.	Greenwood	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Nov.	19	Waddell, Dr. George H.	Coronaca	Greenwood	By Express	By Agent	20
		McGee, M. B.	Hodges	Hodges	By Express	By Agent	20
		Burnell, Wiley	Ninety-Six	Ninety-Six	By Express	By Agent	20
		Wideman, James H.	Troy	Troy	By Express	By Agent	20
		Caldwell, J. C.	Donaldsville	Donaldsville	By Express	By Agent	20
		Lindsay, A. B. C.	Bold Branch	Troy	By Express	By Agent	20
Dec.	27	Alexander, T. N.	Hodges	Hodges	By Express	By Agent	20
		Shirley, A. P.	Honea Path	Honea Path	By Express	By Agent	20
		Hawthorne, J. E.	Due West	Donaldsville	By Express	By Agent	20
		Elgin, W. J.	Donaldsville	Donaldsville	By Express	By Agent	20
		Young, A. B.	Due West	Donaldsville	By Express	By Agent	20
		Hall, D. L.	Moffettsville	Anderson	By Express	By Agent	20
	28	Gary, F. F.	Abbeville	Abbeville	By Express	By Agent	20
			AIKEN	COUNTY.			
1883.							
Nov.	26	Evans, B. L.	Windsor	Windsor	By Express	By Agent	20
		Gunter, Eldridge	Montmorenci	Montmorenci	By Express	By Agent	20
		Willis, George.	Aiken	Aiken	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883. Nov. 20.	George, C. H	Aiken	Aiken	By Express	By Agent	20
	Posey, L	Aiken	Aiken	By Express	By Agent	20
	Green, F. M	Hawthorn	Ellenton	By Express	By Agent	20
	Younce, Lewis	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Kraps, E. S	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Johnston, J. T	Ridge Spring	Johnston	By Express	By Agent	20
	Red, John	Montmorenci	Montmorenci	By Express	By Agent	20
		ANDERSON	COUNTY.			
1883. Nov. 19	Shuley, J. C	Anderson	Anderson	By Express	By Agent	20
	Cox, A. R	Belton	Belton	By Express	By Agent	20
	Bratchen, James D	Nera	Anderson	By Express	By Agent	20
	Thompson, Cudjo	Nera	Anderson	By Express	By Agent	20
	Sadler, David	Moffettsville	Anderson	By Express	By Agent	20
	Simpson, C. C	Moffettsville	Anderson	By Express	By Agent	20
	Holland, A. M	Holland's Store	Anderson	By Express	By Agent	20
	Holland, T. J	Holland's Store	Anderson	By Express	By Agent	20
	Harley, J. J	Townville	Westminster	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 19.	Bradley, J. T.	Anderson	Anderson	By Express	By Agent	20
	Brown, Peter S	Anderson	Anderson	By Express	By Agent	20
	Bailey, R. S.	Anderson	Anderson	By Express	By Agent	20
	Breazeal, B. B.	Anderson	Anderson	By Express	By Agent	20
	Whitesides, B. F.	Anderson	Anderson	By Express	By Agent	20
	Todd, W. H	Belton	Anderson	By Express	By Agent	20
	Holland, Joshua	Anderson	Anderson	By Express	By Agent	20
	Humphries, Wade C.	Anderson	Anderson	By Express	By Agent	20
	Humphries, W. W.	Anderson	Anderson	By Express	By Agent	20
	McDonald, Wm. H.	Anderson	Anderson	By Express	By Agent	20
	Allen, John E.	Anderson	Anderson	By Express	By Agent	20
	Smith, Samuel	Anderson	Anderson	By Express	By Agent	20
	Shirley, Wm	Anderson	Anderson	By Express	By Agent	20
	Clinkscales, J. P.	Anderson	Anderson	By Express	By Agent	20
	Rice, A. E.	Anderson	Anderson	By Express	By Agent	20
	McConnell, J. Milton	Anderson	Anderson	By Express	By Agent	20
	McGee, A. D.	Anderson	Anderson	By Express	By Agent	20
	Masters, Jas. L.	Anderson	Anderson	By Express	By Agent	20
	Ligon, Thos. C.	Anderson	Anderson	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 19	Ligon, W. J.	Anderson	Anderson	By Express	By Agent	20
	Ligon, W. S.	Anderson	Anderson	By Express	By Agent	20
	Jones, Jno. H.	Anderson	Anderson	By Express	By Agent	20
	Osborn, W. R.	Anderson	Anderson	By Express	By Agent	20
	Dougan, J. P.	Belton	Belton	By Express	By Agent	20
	Foster, A. D.	Belton	Belton	By Express	By Agent	20
	Taylor, G. W.	Belton	Belton	By Express	By Agent	20
	Vaughn, J. J.	Belton	Belton	By Express	By Agent	20
	Cummings, Harvey A.	Belton	Belton	By Express	By Agent	20
	Rice, J. T	Belton	Belton	By Express	By Agent	20
	Mattison, Jas. D.	Belton	Belton	By Express	By Agent	20
	Brock, J. H.	Nera	Anderson	By Express	By Agent	20
	McGee, M	Nera	Anderson	By Express	By Agent	20
	Corley, H. R	Nera	Anderson	By Express	By Agent	20
	Corley, W. R.	Nera	Anderson	By Express	By Agent	20
	Corley, E. T	Nera	Anderson	By Express	By Agent	20
	Gamsell, M. A.	Bushy Creek	Greenville	By Express	By Agent	20
	Williams, W. R.	Bushy Creek	Greenville	By Express	By Agent	20
	Williams, S. G	Bushy Creek	Greenville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883. Nov. 19	Rosamond, J. W	Bushy Creek	Easley	By Express	By Agent	20
	Merritt, J. M	Bushy Creek	Greenville	By Express	By Agent	20
	Davis, W. A	Honea Path	Honea Path	By Express	By Agent	20
	Burts, S. J	Honea Path	Honea Path	By Express	By Agent	20
	Burts, R. W	Honea Path	Honea Path	By Express	By Agent	20
	Gaines, Haywood	Honea Path	Honea Path	By Express	By Agent	20
	Gaines, E. P	Honea Path	Honea Path	By Express	By Agent	20
	Gambrell, A. R	Honea Path	Honea Path	By Express	By Agent	20
	Gaines, M. B	Honea Path	Honea Path	By Express	By Agent	20
	Greer, Geo. M	Honea Path	Honea Path	By Express	By Agent	20
	Green, David R	Honea Path	Honea Path	By Express	By Agent	20
	Green, L. V	Honea Path	Honea Path	By Express	By Agent	20
	Coker, John J	Honea Path	Honea Path	By Express	By Agent	20
	Cox, Avis	Honea Path	Honea Path	By Express	By Agent	20
	Harper, P. H	Honea Path	Honea Path	By Express	By Agent	20
	McCullough, Eugene	Honea Path	Honea Path	By Express	By Agent	20
	Martin, Jas. S	Honea Path	Honea Path	By Express	By Agent	20
	Armstrong, J. A.	Honea Path	Honea Path	By Express	By Agent	20
	Austin, Jno. H	Honea Path	Honea Path	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 19	Cobb, W. H.	Honea Path	Honea Path	By Express	By Agent.	20
	Shirley, R. M.	Honea Path	Honea Path	By Express	By Agent	20
	Shirley, J. M	Honea Path	Honea Path	By Express	By Agent	20
	Shaw, Richard P	Honea Path	Honea Path	By Express	By Agent	20
	Cobb, B. F	Honea Path	Honea Path	By Express	By Agent	20
	Cox, W. L	Honea Path	Honea Path	By Express	By Agent	20
	Callahan, Jno. R	Honea Path	Honea Path	By Express	By Agent	20
	Cheshire, R. S	Honea Path	Honea Path	By Express	By Agent	20
	Trussell, Jno. R	Honea Path	Honea Path	By Express	By Agent	20
	Ragsdale, Charlie	Honea Path	Honea Path	By Express	By Agent	20
	Robinson, B. Frank	Honea Path	Honea Path	By Express	By Agent	20
	Mattison, G. Walter	Honea Path	Honea Path	By Express	By Agent	20
	Mattison, J. W	Honea Path	Honea Path	By Express	By Agent	20
	Mattison, W. T	Honea Path	Honea Path	By Express	By Agent	20
	Latimer, J. R	Honea Path	Honea Path	By Express	By Agent	20
	Kay, Jno. R	Honea Path	Honea Path	By Express	By Agent	20
	Wilson, J. R	Williamston	Williamston	By Express	By Agent	20
	Gray, Robt. A	Williamston	Williamston	By Express	By Agent	20
	Wellborn, A. F	Williamston	Williamston	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 19	Hayne, J. L	Williamston	Williamston	By Express	By Agent	20
	Hacker, W	Toney Creek	Belton	By Express	By Agent	20
	Poore, Saml	Toney Creek	Belton	By Express	By Agent	20
	Parre, E. H	Toney Creek	Belton	By Express	By Agent	20
	Ashley, Jas. R	Stoney Point	Williamston	By Express	By Agent	20
	McAllister, Nathan	Stoney Point	Anderson	By Express	By Agent	20
	Leverett, Jno. B	Stoney Point	Anderson	By Express	By Agent	20
	Boatner, Wm. F	Williamston	Williamston	By Express	By Agent	20
	Wellborn, Jno. R	Williamston	Williamston	By Express	By Agent	20
	Wellborn, M. E	Williamston	Williamston	By Express	By Agent	20
Dec. 27	Marrett, Jas	Brushy Creek	Greenville	By Express	By Agent	20
	King, I. J	Brushy Creek	Greenville	By Express	By Agent	20
	Williams, L. A	Honea Path	Honea Path	By Express	By Agent	20
	Duckworth, J. K	Anderson	Anderson	By Express	By Agent	20
	Dacus, J. A	Williamston	Williamston	By Express	By Agent	20
	Hogg, B. L	Williamston	Williamston	By Express	By Agent	20
	Hogg, Thos	Williamston	Williamston	By Express	By Agent	20
	Parker, M. C	Honea Path	Honea Path	By Express	By Agent	20
	Burress, Z. L	Mountain Creek	Anderson	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Dec. 27	Mahaffy, Asa.	Williamston	Williamston	By Express	By Agent	20
	Mahaffy, Hugh	Williamston	Williamston	By Express	By Agent	20
	Hall, John W.	Anderson	Anderson.	By Express	By Agent	20
	Armstrong, H. J	Honea Path	Honea Path	By Express	By Agent	20
	Miller, Peter	Honea Path	Honea Path	By Express	By Agent	20
	Cox, Daniel L.	Broyles	Anderson	By Express	By Agent	20
	Shirley, J. L.	Honea Path	Honea Path	By Express	By Agent	20
	Drake, J. F.	Williamston	Williamston	By Express	By Agent	20
	Smith, Jesse M.	Anderson	Anderson	By Express	By Agent	20
	Jolly, J. A.	Anderson	Anderson	By Express	By Agent	20
	Knight, John	Belton	Belton	By Express	By Agent	20
	Harper, J. H.	Belton	Belton	By Express	By Agent	20
	Scott, T. M.	Belton	Belton.	By Express	By Agent	20
	Simpson, Mrs. R. F.	Pendleton	Pendleton	By Express	By Agent	20
	Long, John	Anderson	Anderson	By Express	By Agent	20
28	Ashley, James R	Stoney Point	Anderson.	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. fo Fish.
		BARNWELL	COUNTY.			
1883. Nov. 26	Weathersbee, B	Williston	Williston	By Express	By Agent	20
	Devaux, A. D	Baldock	Baldock	By Express	By Agent	20
	Haverner, W. S	Baldock	Baldock	By Express	By Agent	20
	Cater, P. M	Baldock	Baldock	By Express	By Agent	20
	Walker, N. M	Baldock	Allendale	By Express	By Agent	20
	Walker, J. P	Baldock	Allendale	By Express	By Agent	20
	Barnes, Mrs. S. F	Baldock	Baldock	By Express	By Agent	20
	Dewitt, T. H	Baldock	Baldock	By Express	By Agent	20
	Payton, Jas	Baldock	Baldock	By Express	By Agent	20
	Owens, D. H	Dunbarton	Robbins	By Express	By Agent	20
	Fowke, Jno. C	Baldock	Baldock	By Express	By Agent	20
	Folk, J. F., Sr	Midway	Midway	By Express	By Agent	20
	Still, J. S	Barnwell	Barnwell	By Express	By Agent	20
	Morris, J. R., Sr	Bamberg	Bamberg	By Express	By Agent	20
	Morris, G. M	Bamberg	Bamberg	By Express	By Agent	20
	Morris, W. H	Bamberg	Bamberg	By Express	By Agent	20
	Morris, J. R., Jr	Bamberg	Bamberg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 26	Morris, J. H	Bamberg	Bamberg	By Express	By Agent	20
	McMillan, Jno. B	Bamberg	Bamberg	By Express	By Agent	20
	Green, Jno. J	Dunbarton	Williston	By Express	By Agent	20
	Tarrant, R. B	Graham's Turnout	Graham's T. O	By Express	By Agent	20
	Hulett, W. R	Lower Three Runs	Millette	By Express	By Agent	20
	Garick, L. P	Graham's Turnout	Graham's T. O	By Express	By Agent	20
	Flaming, Jno. C	Blackville	Blackville	By Express	By Agent	20
	McClendon, L. L	Blackville	Blackville	By Express	By Agent	20
	Phillips, John T	Blackville	Blackville	By Express	By Agent	20
Dec. 27	Calding, T. B	Appleton	Appleton	By Express	By Agent	20
	Augley, J. B	Appleton	Appleton	By Express	By Agent	20
	Dupries, J. H	Appleton	Appleton	By Express	By Agent	20
	Hardin, O. B	Appleton	Appleton	By Express	By Agent	20
	Owens, F. S	Baldock	Baldock	By Express	By Agent	20
	Krepton, J. F	Baldock	Baldock	By Express	By Agent	20
	Owens, J. W	Baldock	Baldock	By Express	By Agent	20
	Miller, J. C	Appleton	Appleton	By Express	By Agent	20
	Goodson, J. M	Appleton	Appleton	By Express	By Agent	20
28	Kennedy, W. L	Bamberg	Bamberg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Dec.	28	Gray, S. G.	Bamberg	Bamberg	By Express	By Agent	20
		Smith, John G.	Williston	Williston	By Express	By Agent	20
		Smith, J. T.	Williston	Williston	By Express	By Agent	20
			BEAUFORT	COUNTY.			
Nov.	26	Conant & Emmus	Beaufort	Beaufort	By Express	By Agent	20
			BERKELEY	COUNTY.			
Nov.	26	Gillard, Jas.	Eutawville.	St. Stephen's	By Express	By Agent	20
		Lucas, Lewis	Monck's Corner	Monck's Corner	By Express.	By Agent	20
		Gillard, Arthur P.	Trial	St. Stephen's	By Express	By Agent	20
		Smith, T. Henry	10 Mile Hill	10 Mile Hill	By Express	By Agent	20
	28	Gregg, Col. Wm.	Summerville	Summerville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
			CHARLESTON	COUNTY.			
1883.							
Nov.	29	Chisolm, Laurens N.	Charleston	Summerville	By Express	By Agent	20
		Barkley, R. C.	Charleston	Charleston	By Express	By Agent	20
		Body, Theo. G.	Charleston	Charleston	By Express	By Agent	20
			CHESTER	COUNTY.			
Nov.	21	Mitchell, T. P.	Blackstock	Blackstock	By Express	By Agent	20
		Hicklin, Jas. R.	Richburg	Richburg	By Express	By Agent	20
		Conrad, W. R.	Sawyersville	Chester	By Express	By Agent	20
		McMurry, J. Harper	Smith's T. O.	Chester	By Express	By Agent	20
		Hicklin, W. Cloud	Smith's T. O.	Chester	By Express	By Agent	20
Dec.	27	Wilks, J. Wesley	Baton Rouge	Chester	By Express	By Agent	16
		Pressly, A. T.	Chester	Chester	By Express	By Agent	16
		Harden, Robt. W.	Chester	Chester	By Express	By Agent	16
		Gregory, B. P.	Baton Rouge	Chester	By Express	By Agent	16
		Terepanzt, Henry	Baton Rouge	Chester	By Express	By Agent	16
		Hall, Hon. W. S.	Rocky Mount	Chester	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
			CHESTERFIELD	COUNTY.			
1883. Nov.	19	Sullivan, Jas.	Chesterfield	Cheraw	By Express	By Agent	20
			CLARENDON	COUNTY.			
Nov.	19	Thomas, J. T. L.	Clarendon	Manning	By Express	By Agent	20
		Tindall, E. A.	Summerton	Sumter	By Express	By Agent	20
			COLLETON	COUNTY.			
Nov.	26	Jenkins, J. T	Ross Station	41 Station	By Express	By Agent	20
		McElhaney, T. O	St. George's.	Colleton	By Express	By Agent	20
Dec.	27	Stroble, Dr. Jno. E	Ridgeville	Ridgeville	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.		DARLINGTON	COUNTY.			
Nov. 19	Reynolds, Jno. R.	Timmonsville	Timmonsville	By Express	By Agent	20
	Gee, W. P.	Ebenezer	Florence	By Express	By Agent	20
	McCown, Samuel O.	Ebenezer	Florence	By Express	By Agent	20
	Haynesworth, M. S	Florence	Florence	By Express	By Agent	20
	McCollough, C. S	Darlington	Darlington	By Express	By Agent	20
	Jamison, W. H	Society Hill	Society Hill	By Express	By Agent	20
	Cown, Mrs. Carrie B	Ebenezer	Florence	By Express	By Agent	20
	Smoot, Thos. W	Palmetto	Darlington	By Express	By Agent	20
	Smoot & Rogers	Palmetto	Darlington	By Express	By Agent	20
Dec. 27	Bardin, Jno. L	Effingham	Effingham	By Express	By Agent	16
	Cooper, J. C	Effingham	Effingham	By Express	By Agent	16
		EDGEFIELD	COUNTY.			
1883.						
Nov. 23	Rodgers, Martin	Clintonward	Ward's	By Express	By Agent	20
	Ward, Jos. W.	Clintonward	Ward's	By Express.	By Agent	20
	Ward, Mrs. Mather	Clintonward	Ward's	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 23	Edson, A. R.	Clintonward	Ward's	By Express	By Agent	20
	Godman, H. S.	Clintonward	Ward's	By Express	By Agent	20
	Davis, James	Clintonward	Ward's	By Express	By Agent	20
	Denny, John, Sr.	Clintonward	Ward's	By Express	By Agent	20
	Bunch, J. J.	Poverty Hill	Augusta, Ga.	By Express	By Agent	20
30	Self, J. A.	Kirksey	Ninety-Six	By Express	By Agent	20
23	Smyley, J. M.	Meeting Street	Johnston	By Express	By Agent	20
	Lewis, T. S.	Meeting Street	Johnston	By Express	By Agent	20
	Parker, M. C.	Edgefield	Trenton	By Express	By Agent	20
	Cerlley, A. D.	Caughman's Store	Leesville	By Express	By Agent	20
	Eargle, J. P.	Caughman's Store	Leesville	By Express	By Agent	20
	Turner, Noah	Caughman's Store	Leesville	By Express	By Agent	20
30	Smyley, J. S.	Meeting Street	Ninety-Six	By Express	By Agent	20
23	Courtney, J. B.	Trenton	Trenton	By Express	By Agent	20
	Miller, B. H.	Trenton	Trenton	By Express	By Agent	20
	Miller, Q. L.	Trenton	Trenton	By Express	By Agent	20
	Younce, Martin	Trenton	Trenton	By Express	By Agent	20
	Day, R. B.	Trenton	Trenton	By Express	By Agent	20
	Whitman, P. B.	Etheridge	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
			DARLINGTON	COUNTY.			
1883.							
Nov.	19	Reynolds, Jno. R	Timmonsville	Timmonsville	By Express	By Agent	20
		Gee, W. P	Ebenezer	Florence	By Express	By Agent	20
		McCown, Samuel O	Ebenezer	Florence	By Express	By Agent	20
		Haynesworth, M. S	Florence	Florence	By Express	By Agent	20
		McCollough, C. S	Darlington	Darlington	By Express	By Agent	20
		Jamison, W. H	Society Hill	Society Hill	By Express	By Agent	20
		Cown, Mrs. Carrie B	Ebenezer	Florence	By Express	By Agent	20
		Smoot, Thos. W	Palmetto	Darlington	By Express	By Agent	20
		Smoot & Rogers	Palmetto	Darlington	By Express	By Agent	20
Dec.	27	Bardin, Jno. L	Effingham	Effingham	By Express	By Agent	16
		Cooper, J. C	Effingham	Effingham	By Express	By Agent	16
			EDGEFIELD	COUNTY.			
1883.							
Nov.	23	Rodgers, Martin	Clintonward	Ward's	By Express	By Agent	20
		Ward, Jos. W	Clintonward	Ward's	By Express	By Agent	20
		Ward, Mrs. Mather	Clintonward	Ward's	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883. Nov. 23	Edson, A. R	Clintonward	Ward's	By Express	By Agent	20
	Godman, H. S	Clintonward	Ward's	By Express	By Agent	20
	Davis, James	Clintonward	Ward's	By Express	By Agent	20
	Denny, John, Sr	Clintonward	Ward's	By Express	By Agent	20
	Bunch, J. J	Poverty Hill	Augusta, Ga.	By Express	By Agent	20
30	Self, J. A	Kirksey	Ninety-Six	By Express	By Agent	20
23	Smyley, J. M	Meeting Street	Johnston	By Express	By Agent	20
	Lewis, T. S	Meeting Street	Johnston	By Express	By Agent	20
	Parker, M. C	Edgefield	Trenton	By Express	By Agent	20
	Cerlley, A. D	Caughman's Store	Leesville	By Express	By Agent	20
	Eargle, J. P	Caughman's Store	Leesville	By Express	By Agent	20
	Turner, Noah	Caughman's Store	Leesville	By Express	By Agent	20
30	Smyley, J. S	Meeting Street	Ninety-Six	By Express	By Agent	20
23	Courtney, J. B	Trenton	Trenton	By Express	By Agent	20
	Miller, B. H	Trenton	Trenton	By Express	By Agent	20
	Miller, Q. L	Trenton	Trenton	By Express	By Agent	20
	Younce, Martin	Trenton	Trenton	By Express	By Agent	20
	Day, R. B	Trenton	Trenton	By Express	By Agent	20
	Whitman, P. B	Etheridge	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 23.	Wright, T. S	Clintonward	Clintonward	By Express	By Agent	20
	Ward, Clinton	Clintonward	Clintonward	By Express	By Agent	20
	Hughes, W. P	Clintonward	Clintonward	By Express	By Agent	20
	Huil, Jackson	Clintonward	Clintonward	By Express	By Agent	20
	Satchen, Mrs. Jane	Clintonward	Clintonward	By Express	By Agent	20
	Mobley, James I	Clintonward	Clintonward	By Express	By Agent	20
	Mims, Marcella	Johnston	Johnston	By Express	By Agent	20
	Riley, Thomas J	Johnston	Johnston	By Express	By Agent	20
	Read, W. J	Johnston	Johnston	By Express	By Agent	20
	Attaway, J. A	Johnston	Johnston	By Express	By Agent	20
	Teague, T. J	Johnston	Johnston	By Express	By Agent	20
	Younce, Wm.	Johnston	Johnston	By Express	By Agent	20
	Derrick, R. M	Johnston	Johnston	By Express	By Agent	20
	Bartley, J. W. L	Johnston	Johnston	By Express	By Agent	20
	Boatwright, Jas. H	Johnston	Johnston	By Express	By Agent	20
	Parker, Milton	Edgefield	Trenton	By Express	By Agent	20
	Huiet, W. J	Johnston	Johnston	By Express	By Agent	20
	Moore, T. C	Caughman's Store	Leesville	By Express	By Agent	20
	Rinehart, V. P	Caughman's Store	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883. Nov. 23.	Rinehart, Walter	Caughman's Store	Leesville	By Express	By Agent	20
	Rinehart, F. C	Caughman's Store	Leesville	By Express	By Agent	20
	Powell, W. G	Caughman's Store	Leesville	By Express	By Agent	20
	Creed, Millage	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Nicholson, R. J	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Nichols, R. E	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Mayer, W. H	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Rutland, Jas	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Watson, J. C.	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Bouknight, S	Ridge Spring	Batesburg	By Express	By Agent	20
	Hill, W. R	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Hill, Dr. R. S	Ridge Spring	Ridge Spring.	By Express	By Agent	20
	Younce, Daniel	Ridge Spring.	Ridge Spring	By Express	By Agent	20
	Williams, W. H	Ridge Spring.	Ridge Spring	By Express	By Agent	20
	Boatright, B. T	Ridge Spring.	Ridge Spring	By Express	By Agent	20
	Wright, H. T	Johnston	Johnston	By Express,	By Agent	20
	Salter, Mrs. Fannie	Johnston	Johnston	By Express	By Agent	20
	Coleman, Willis Lee	Johnston	Johnston	By Express	By Agent.	20
	Neal, Jas. T	Johnston	Johnston	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 23	Bedenbaugh, J. A., Sr.	Caughman's Store	Leesville	By Express	By Agent	20
	Bedenbaugh, J. A., Jr.	Caughman's Store	Leesville	By Express	By Agent	20
	Caughman, Jacob	Caughman's Store	Leesville	By Express	By Agent	20
	Caughman, John C.	Caughman's Store	Leesville	By Express	By Agent	20
	Derrick, Jesse	Caughman's Store	Leesville	By Express	By Agent	20
	Derrick, Wm. W	Caughman's Store	Leesville	By Express	By Agent	20
	Derrick, A. L.	Caughman's Store	Leesville	By Express	By Agent	20
	Etheridge, Tyre T.	Caughman's Store	Leesville	By Express	By Agent	20
	Stone, Wm. N.	Caughman's Store	Leesville	By Express	By Agent	20
	Shealy, T. S.	Caughman's Store	Leesville	By Express	By Agent	20
	Shealy, T. W.	Caughman's Store	Leesville	By Express	By Agent	20
	Harman, W. D. M.	Caughman's Store	Leesville	By Express	By Agent	20
	Black, Jesse W.	Caughman's Store	Leesville	By Express	By Agent	20
	Kiser, J. H.	Caughman's Store	Leesville	By Express	By Agent	20
	Wheeler, H. L.	Caughman's Store	Leesville	By Express	By Agent	20
	Seigler, J. W.	Ridge Spring	Ridge Spring	By Express	By Agent	20
	Mobley, A. J.	Johnston	Johnston	By Express	By Agent	20
	Harris, M.	Trenton	Trenton	By Express	By Agent	20
	Griffin, W. J.	Edgefield	Trenton	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.		Greaddick, Elias B. L	Richardsonville	Johnston	By Express	By Agent	20
Nov.	23	Whittle, Thos	Mine Creek	Johnston	By Express	By Agent	20
		Hill, J. W	Edgefield	Trenton	By Express	By Agent	20
		May, B. F	Edgefield	Trenton	By Express	By Agent	20
		Whitman, W	Etheridge	Leesville	By Express	By Agent	20
		Elleridge, Caleb	Caughman's Store	Batesburg	By Express	By Agent	20
		Sullgrove, Eli	Caughman's Store	Batesburg	By Express	By Agent	20
		Sheely, H. A	Caughman's Store	Leesville	By Express	By Agent	20
		Sheely, Paul	Caughman's Store	Leesville	By Express	By Agent	20
		Corley, Jas. P	Caughman's Store	Leesville	By Express	By Agent	20
	30	McNeary, L. C	Caughman's Store	Prosperity	By Express	By Agent	20
	23	Trottler, F. W	Caughman's Store	Leesville	By Express	By Agent	20
		Bedenbaugh, Wm. A	Caughman's Store	Leesville	By Express	By Agent	20
Dec.	27	Bedenbaugh, Matthew	Caughman's Store	Leesville	By Express	By Agent	16
		Rodgers, M. A	Ridge Spring	Ward's	By Express	By Agent	16
		Rodgers, L. A	Ridge Spring	Ward's	By Express	By Agent	16
		Wright, T. S	Clintonward	Ward's	By Express	By Agent	16
		Feaster, L. R	Batesburg	Batesburg	By Express	By Agent	16
		Courtney, L. J	Trenton	Trenton	By Express	By Agent	16
	28	Towns, F. A	Dyson's	Ninety-Six	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		FAIRFIELD	COUNTY.			
1883.						
Nov. 21	Bookhart, S. W	Blythewood	Blythewood	By Express	By Agent	20
	Wooton, Chas. B	Blythewood	Blythewood	By Express	By Agent	20
	Lorick, James M	Blythewood	Blythewood	By Express	By Agent	20
	Bolick, J. W	Winnsboro	Winnsboro	By Express	By Agent	20
	Brice, Thos. W	Woodward's	Woodward's	By Express	By Agent	16
Dec. 27	Clannery, R. C	Blackstock	Blackstock	By Express	By Agent	16
		GREENVILLE	COUNTY.			
Nov. 30	Rosemond, Miss M. E	Reid	Greenville	By Express	By Agent	20
	Frammel, W. C	Lima	Greenville	By Express	By Agent	20
	Thacker, W. H	Piedmont	Pelzer	By Express	By Agent	20
	Buist, H. B	Greenville	Greenville	By Express	By Agent	20
	Trotter, G. L	Greenville	Greenville	By Express	By Agent	20
	Stone, J. G	Gowensville	Campobello	By Express	By Agent	20
	Underwood, J. J	Gowensville	Campobello	By Express	By Agent	20
Nov. 22	Atkins, M. C	Gowensville	Campobello	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 22	Stags, Jackson	Gowensville	Campobello	By Express	By Agent	20
	Pigler, Jacob	Gowensville	Campobello	By Express	By Agent	20
	Pigler, J. W. S	Gowensville	Campobello	By Express	By Agent	20
	Pigler, W. H	Gowensville	Campobello	By Express	By Agent	20
	Pigler, G. W	Gowensville	Campobello	By Express	By Agent	20
	Morris, G. B	Gowensville	Campobello	By Express	By Agent	20
	Hammett, G. W	Gowensville	Campobello	By Express	By Agent	20
	Atkins, Elias	Gowensville	Campobello	By Express	By Agent	20
	Cokes, Wilson	Alba	Honea Path	By Express	By Agent	20
	Manly, M. M	Alba	Honea Path	By Express	By Agent	20
	McCullough, J. W	Alba	Honea Path	By Express	By Agent	20
	Humphries, Jas. B	Marietta	Greenville	By Express	By Agent	20
	Hawkins, Pascal	Highland Grove	Grier's	By Express	By Agent	20
	Rector, John W	Highland Grove	Grier's	By Express	By Agent	20
	Clark, E. B.	Linderman	Greenville	By Express	By Agent	20
Dec. 27	Pool, L. P	Traveller's Rest	Greenville	By Express	By Agent	16
	Benson, J. J	Traveller's Rest	Greenville	By Express	By Agent	16
	Edwards, Jas	Greenville	Greenville	By Express	By Agent	16
	Clark, A. J	Linderman	Greenville	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		FAIRFIELD	COUNTY.			
1883. Nov. 21	Bookhart, S. W	Blythewood	Blythewood	By Express	By Agent	20
	Wooton, Chas. B	Blythewood	Blythewood	By Express	By Agent	20
	Lorick, James M	Blythewood	Blythewood	By Express	By Agent	20
	Bolick, J. W	Winnsboro	Winnsboro	By Express	By Agent	20
	Brice, Thos. W	Woodward's	Woodward's	By Express	By Agent	16
Dec. 27	Clannery, R. C	Blackstock	Blackstock	By Express	By Agent	16
		GREENVILLE	COUNTY.			
Nov. 30	Rosemond, Miss M. E	Reid	Greenville	By Express	By Agent	20
	Frammel, W. C	Lima	Greenville	By Express	By Agent	20
	Thacker, W. H	Piedmont	Pelzer	By Express	By Agent	20
	Buist, H. B	Greenville	Greenville	By Express	By Agent	20
	Trotter, G. L	Greenville	Greenville	By Express	By Agent	20
	Stone, J. G	Gowensville	Campobello	By Express	By Agent	20
	Underwood, J. J	Gowensville	Campobello	By Express	By Agent	20
Nov. 22	Atkins, M. C	Gowensville	Campobello	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 22	Stags, Jackson	Gowensville	Campobello	By Express	By Agent	20
	Pigler, Jacob	Gowensville	Campobello	By Express	By Agent	20
	Pigler, J. W. S	Gowensville	Campobello	By Express	By Agent	20
	Pigler, W. H	Gowensville	Campobello	By Express	By Agent	20
	Pigler, G. W	Gowensville	Campobello	By Express	By Agent	20
	Morris, G. B	Gowensville	Campobello	By Express	By Agent	20
	Hammett, G. W	Gowensville	Campobello	By Express	By Agent	20
	Atkins, Elias	Gowensville	Campobello	By Express	By Agent	20
	Cokes, Wilson	Alba	Honea Path	By Express	By Agent	20
	Manly, M. M	Alba	Honea Path	By Express	By Agent	20
	McCullough, J. W	Alba	Honea Path	By Express	By Agent	20
	Humphries, Jas. B	Marietta	Greenville	By Express	By Agent	20
	Hawkins, Pascal	Highland Grove	Grier's	By Express	By Agent	20
	Rector, John W	Highland Grove	Grier's	By Express	By Agent	20
	Clark, E. B.	Linderman	Greenville	By Express	By Agent	20
Dec. 27	Pool, L. P	Traveller's Rest	Greenville	By Express	By Agent	16
	Benson, J. J	Traveller's Rest	Greenville	By Express	By Agent	16
	Edwards, Jas	Greenville	Greenville	By Express	By Agent	16
	Clark, A. J	Linderman	Greenville	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Dec.	27	Glenn, W. L. A.	Linderman	Greenville	By Express	By Agent	16
		Cooper, W. H.	Huntersville	Greenville	By Express	By Agent	16
			HAMPTON	COUNTY.			
Nov.	26	Rives, J. B.	Hampton	Hampton	By Express	By Agent	20
		Rivers, C. W.	Hampton	Hampton	By Express	By Agent	20
		Rushing, R. W.	Seminole.	Hampton.	By Express	By Agent	20
Dec.	28	Goethe, Dr. J. H.	Varnville	McNeill's	By Express	By Agent	20
			HORRY	COUNTY.			
	27	Sarvis, T. S.	Socastee.	Fair Bluff.	By Express	By Agent	16
		Sarvis, Moses S.	Bucksville	Fair Bluff	By Express	By Agent	16
			KERSHAW	COUNTY.			
Nov.	19	Boykin, Dr. E. M.	Camden	Camden.	By Express	By Agent	20
		Boykin, B.	Camden	Camden.	By Express	By Agent	20
		Stevenson, F. M.	Flat Rock	Camden.	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. fo Fish.
		LANCASTER	COUNTY.			
1883. Nov. 21	Beckham, Jr., Simon	Pleasant Hill	Lancaster	By Express	By Agent	20
	Cauthen, A. J.	Pleasant Hill	Lancaster	By Express	By Agent	20
	Cauthen, L. W	Pleasant Hill	Lancaster	By Express	By Agent	20
	Cauthen, Mrs. Jane	Pleasant Hill	Lancaster	By Express	By Agent	20
	Beckham, Dr. R. S	Pleasant Hill	Lancaster	By Express	By Agent	20
		LAURENS	COUNTY.			
30	Westmoreland, S. P	Cedar Grove	Greenville	By Express	By Agent	20
	Martin, Lewis	Brewerton	Honea Path	By Express	By Agent	20
	Young, Jas. A	Clinton	Clinton	By Express	By Agent	20
	Young, Arthur G	Goldville	Goldville	By Express	By Agent	20
	Young, J. Julian	Goldville	Goldville	By Express	By Agent	20
	Addy, J. Y	Goldville	Martin's	By Express	By Agent	20
	Finley, Jas. M	Laurens	Laurens	By Express	By Agent	20
	Templeton, R. S	Laurens	Laurens	By Express	By Agent	20
	Taylor, O. K	Laurens	Laurens	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 30	Hill, J. T.	Clinton	Clinton	By Express	By Agent	20
	Young, R. M	Clinton	Clinton	By Express	By Agent	20
	Copeland, A. M	Clinton	Clinton	By Express	By Agent	20
	Ansley, D. L	Clinton	Clinton	By Express	By Agent	20
	Gore, D. N	Clinton	Clinton	By Express	By Agent	20
	Pettis, Thomas	Clinton	Clinton	By Express	By Agent	20
	Goodgions, J. E	Goodgion's Factory	Laurens	By Express	By Agent	20
	Roland, J. J	Goodgion's Factory	Laurens	By Express	By Agent	20
	Madden, T. H	McPherson's	Laurens	By Express	By Agent	20
	Hunter, J. P	Scuffleton	Laurens	By Express	By Agent	20
Dec. 27	Davenport, John	Laurens	Laurens	By Express	By Agent	16
	Simpson, James	Clinton	Clinton	By Express	By Agent	16
	Davis, Dr. J. F	Clinton	Clinton	By Express	By Agent	16
	Irby, W. C	Clinton	Clinton	By Express	By Agent	16
	Neill, W. W	Goldville	Goldville	By Express	By Agent	16
	Miller, George A	Goldville	Goldville	By Express	By Agent	16
	Smith, James A	Goldville	Goldville	By Express	By Agent	16
	Milam, J. F	Clinton	Clinton	By Express	By Agent	16
	Crawford, James A	Goldville	Goldville	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 30	Miller, C. M	Laurens	Laurens	By Express	By Agent	20
	Langston, Anderson	Laurens	Laurens	By Express	By Agent	20
	Martin, Linwood	Laurens	Laurens	By Express	By Agent	20
	Martin, T. M	Laurens	Laurens	By Express	By Agent	20
	Shell, Walter L	Laurens	Laurens	By Express	By Agent	20
	Shell, G. W	Laurens	Laurens	By Express	By Agent	20
	Madden, M. R	Laurens	Laurens	By Express	By Agent	20
	Madden, John C	Laurens	Laurens	By Express	By Agent	20
	Madden, L. E	Laurens	Laurens	By Express	By Agent	20
	Stoddard, W. B	Powers	Laurens	By Express	By Agent	20
	Austin, R. A	Cross Hill	Chappell's Depot	By Express	By Agent	20
	Bailey, Jas. A	Clinton	Clinton	By Express	By Agent	20
	Duckett, Thos. J	Clinton	Clinton	By Express	By Agent	20
	Young, Dr. J. W	Clinton	Clinton	By Express	By Agent	20
	Young, G. C	Clinton	Clinton	By Express	By Agent	20
	Young, Wm. H	Clinton	Clinton	By Express	By Agent	20
	Copeland, J. W	Clinton	Clinton	By Express	By Agent	20
	Milan, R. R	Clinton	Clinton	By Express	By Agent	20
	Lamb, Andrew	Clinton	Clinton	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Dec. 27	Young, Henry	Clinton	Clinton	By Express	By Agent	16
	Crist, J. H	Goldville	Goldville	By Express	By Agent	16
	Boyd, W. F	Goldville	Goldville	By Express	By Agent	16
	Eash, D. C. D	Goldville	Goldville	By Express	By Agent	16
	Boyd, J. E	Goldville	Goldville	By Express	By Agent	16
	Little, J. H.	Clinton	Clinton	By Express	By Agent	16
	Gray, J. H	Goodgion's	Laurens	By Express	By Agent	16
	Stone, W. A	Clinton	Clinton	By Express	By Agent	16
	Tribble, David E	Clinton	Clinton	By Express	By Agent	16
	Miller, W. Y	Goldville	Goldville	By Express	By Agent	16
	Whitmire, N. P	Goldville	Clinton	By Express	By Agent	16
	Willis, Melmoth	Laurens	Laurens	By Express	By Agent	16
	Shell, E. T	Highland Home	Laurens	By Express	By Agent	16
	Owing, A. C	Powers' Shops	Laurens	By Express	By Agent	16
	Brooks, John	Laurens	Laurens	By Express	By Agent	16
	Owings, Jas. F	Powers' Shops	Laurens	By Express	By Agent	16
	Crawford, D. R	Goldville	Goldville	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		LEXINGTON	COUNTY.			
1883. Nov. 23	George, D. L	Lexington	Lexington	By Express	By Agent	20
	George, E. J	Lexington	Lexington	By Express	By Agent	20
	Wyse, Dr. B. R	Lexington	Lexington	By Express	By Agent	20
	Taylor, Eli	Gilbert Hollow	Gilbert Hollow	By Express	By Agent	20
	Price, J. C	Gilbert Hollow	Lexington	By Express	By Agent	20
	Jumper, E. C	Gilbert Hollow	Gilbert Hollow	By Express	By Agent	20
	Shull, R. B	Gilbert Hollow	Lexington	By Express	By Agent	20
	Ricard, H. S	Summit	Gilbert Hollow	By Express	By Agent	20
	Shealy, Andrew J	Summit	Gilbert Hollow	By Express	By Agent	20
	Shealy, J. J. B	Summit	Leesville	By Express	By Agent	20
	Shealy, F. W	Summit	Gilbert Hollow	By Express	By Agent	20
	Shealy, F. P	Summit	Gilbert Hollow	By Express	By Agent	20
	Shealy, Jas. M	Summit	Gilbert Hollow	By Express	By Agent	20
	Cross, J. M	Summit	Gilbert Hollow	By Express	By Agent	20
	Cross, James W	Summit	Gilbert Hollow	By Express	By Agent	20
	Cross, A. E	Summit	Gilbert Hollow	By Express	By Agent	20
26	Bouknight, A. C	Leesville	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 26.	Bodie, W. E	Leesville	Leesville	By Express	By Agent	20
	Swygert, Enoch	Leesville	Leesville	By Express	By Agent	20
	Etheridge, James W	Leesville	Leesville	By Express	By Agent	20
	Mitchell, W. G	Leesville	Leesville	By Express	By Agent	20
	Burton, James	Leesville	Leesville	By Express	By Agent	20
	Bouknight, A. P	Leesville	Leesville	By Express	By Agent	20
	Burton, James	Leesville	Leesville	By Express	By Agent	20
	Bouknight, A. S	Leesville	Leesville	By Express	By Agent	20
	Etheridge, Tyre	Leesville	Leesville	By Express	By Agent	20
	Haltiwanger, W. C	Peak's	Alston	By Express	By Agent	20
	Epsting, Jacob	Peak's Station	Alston	By Express	By Agent	20
	Haltiwanger, D. J	Peak's Station	Alston	By Express	By Agent	20
	Sutton, Dennis	Peak's Station	Alston	By Express	By Agent	20
Dec. 20	Hiller, John B	Sinclair	Columbia	By Express	By Agent	20
Nov. 26	Hingen, H. E	Sellwood	Lexington	By Express	By Agent	20
	Hayes, S. M	Lexington	Lexington	By Express	By Agent	20
	Hayes, B. J	Lexington	Lexington	By Express	By Agent	20
	Hunter, Neal	Batesburg	Batesburg	By Express	By Agent	20
	Walls, Thomas	Batesburg	Batesburg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Nov.	26	Martin, O. A	Pine Plains	St. Matthew's	By Express	By Agent	20
		Mitchell, J. A	Batesburg	Batesburg	By Express	By Agent	20
		Folk, E. H	Batesburg	Batesburg	By Express	By Agent	20
		Strothers, Dr. E. F	Batesburg	Batesburg	By Express	By Agent	20
		Barrs, W. C	Rocky Well	Gilbert Hollow	By Express	By Agent	20
		Barrs, Col. D. T	Rocky Well	Gilbert Hollow	By Express	By Agent	20
		Barrs, W. G	Rocky Well	Gilbert Hollow	By Express	By Agent	20
		Rawl, Samuel	Rocky Well	Gilbert Hollow	By Express	By Agent	20
		Haltiwanger, Dr. S. A	Rocky Well	Gilbert Hollow	By Express	By Agent	20
Dec.	5	Schmidt, Jno. H	Spring Hill	Columbia	By Express	By Agent	20
Nov.	26	Eargle, J. J	Spring Hill	Alston	By Express	By Agent	20
Dec.	5	Eleazer, W. S	Spring Hill	Columbia	By Express	By Agent	20
Nov.	26	Shealy, N. E	Peak's Station	Alston	By Express	By Agent	20
		Shealy, J. A	Peak's Station	Alston	By Express	By Agent	20
	24	Macarty, B. C	Leesville	Leesville	By Express	By Agent	20
		Spann, J. T	Leesville	Leesville	By Express	By Agent	20
		Spann, P. N	Leesville	Leesville	By Express	By Agent	20
		Spann, R. C	Leesville	Leesville	By Express	By Agent	20
		Spann, H. A	Leesville	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883. Nov. 26	Spann, W. E.	Leesville	Leesville	By Express	By Agent	20
	Spann, J. C.	Leesville	Leesville	By Express	By Agent	20
	Spann, J. W	Leesville	Leesville	By Express	By Agent	20
	Pool, Hiram	Leesville	Leesville	By Express	By Agent	20
	Swygert, J. S.	Leesville	Leesville	By Express	By Agent	20
	Mayes, Jas. A	Leesville	Leesville	By Express	By Agent	20
	Derrick, S. P.	Leesville	Leesville	By Express	By Agent	20
	Etheridge, Uriah	Leesville	Leesville	By Express	By Agent	20
	Bodie, Pinck	Leesville	Leesville	By Express	By Agent	20
	Fink, J. F	Leesville	Leesville	By Express	By Agent	20
	Folk, Henry W	Leesville	Leesville	By Express	By Agent	20
	Shumpert, Jas	Reeder's Store	Lexington.	By Express	By Agent	20
	Folk, H. M	Batesburg	Batesburg	By Express	By Agent	20
	Harman, Edwin	Lexington	Batesburg	By Express	By Agent	20
	Croft, T. W	Oak Villa	Lexington.	By Express	By Agent	20
	Harman, Henry E.	Lexington.	Lexington	By Express	By Agent	20
	Wingard, M. S.	Lexington	Lexington	By Express	By Agent	20
	Booker, Henry	Reeder's Store	Lexington	By Express	By Agent	20
	Roof, S. M.	Lexington	Lexington	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883. Nov. 26	Taylor, Jno. J	Lexington	Lexington	By Express	By Agent	20
	Taylor, B. F	Lexington	Lexington	By Express	By Agent	20
	Taylor, P. M	Lexington	Lexington	By Express	By Agent	20
	Talyor, M. L	Lexington	Lexington	By Express	By Agent	20
	Lindler, J. A	Lexington	Lexington	By Express	By Agent	20
	Lewis, Benj. W	Lexington.	Lexington	By Express	By Agent	20
	Kyzer, K. P	Lexington	Lexington	By Express	By Agent	20
	Harman, Willis	Lexington	Lexington	By Express	By Agent	20
	Epsting, Jas. W	Peak's Station	Alston	By Express	By Agent	20
	Banks, B. F	Leesville	Leesville	By Express	By Agent	20
	Black, David Jr	Leesville	Leesville	By Express	By Agent	20
	Barr, C. D	Leesville	Leesville	By Express	By Agent	20
	Mahle, Wm	Leesville	Leesville	By Express	By Agent	20
	West, J. G	Leesville	Leesville	By Express	By Agent	20
	West, J. J	Leesville	Leesville	By Express	By Agent	20
	Warren, F. A	Leesville	Leesville	By Express	By Agent	20
	Wise, L. G	Leesville	Leesville	By Express	By Agent	20
	Jumper, Jas. W	Leesville	Batesburg	By Express	By Agent	20
	Hendrix, S. F	Leesville	Leesville	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 28	Hardy, J. P.	Leesville	Leesville	By Express	By Agent	20
Dec. 28	Miller, Henry	Peak	Alston	By Express	By Agent	16
	Hipp, E. P.	Peak	Alston	By Express	By Agent	16
	Miller, W. E.	Peak	Alston	By Express	By Agent	16
	Jumper, Dedrick	Gilbert Hollow.	Gilbert Hollow	By Express	By Agent	16
	Caughman, H. T.	Lexington	Lexington	By Express	By Agent	16
	Black, L. U.	Leesville	Leesville	By Express	By Agent	16
	Black, Elmore	Leesville	Leesville	By Express	By Agent	16
	Addy, Thos.	Leesville	Leesville	By Express	By Agent	16
	Krap, Geo.	Leesville	Leesville	By Express	By Agent	16
	Black, David	Leesville	Leesville	By Express	By Agent	16
	Strump, C.	Lexington	Columbia	By Express	By Agent	16
	Feaster, Laurence	Batesburg	Batesburg	By Express	By Agent	16
	Padgett, Jas.	Batesburg	Batesburg	By Express	By Agent	16
		MARION	COUNTY.			
Nov. 19	McDonald, A. J.	Carolina	Shoe Heel	By Express	By Agent	20
	Jones, Fred. D.	Marion	Marion	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Dec. 28	Engor, John	Fair Bluff	Nichols Depot	By Express	By Agent	16
	Alford, D. G	Carolina	Shoe Heel	By Express	By Agent	20
	McRae, H	Campbell's	Marion	By Express	By Agent	20
		MARLBORO	COUNTY.			
Nov. 19	Calhoun, J. A	Clio	Laurenburg	By Express	By Agent	20
	Douglass, R. A	Bennettsville	Cheraw	By Express	By Agent	20
		NEWBERRY	COUNTY.			
Nov. 30	Wicker, Mathias	Prosperity	Prosperity	By Express	By Agent	20
	Kemper, J. B	Prosperity	Prosperity	By Express	By Agent	20
	Keitt, Ellison	Glymphville	Strother's	By Express	By Agent	20
	Summer, W. W	Kinard's T. O	Martin's	By Express	By Agent	20
	Chapman, Geo. H	Pomaria	Pomaria	By Express	By Agent	20
	Kibler, J. F	Pomaria	Pomaria	By Express	By Agent	20
	Shusher, W. F	Walton	Pomaria	By Express	By Agent	20
	Clark, R. P	Jalapa	Jalapa	By Express	By Agent	20
	Folk, B. G	Jalapa	Jalapa	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 30	Glasgow, Geo	Jalapa	Jalapa	By Express	By Agent	20
	Sligh, W. C	Jalapa	Jalapa	By Express	By Agent	20
	Swittenberg, W. C	Jalapa	Jalapa	By Express	By Agent	20
	Payne, J. W	Chappell's	Chappell's	By Express	By Agent	20
	Mims, Rev. A	Chappell's	Chappell's	By Express	By Agent	20
	Webb, R. M	Chappell's	Chappell's	By Express	By Agent	20
	Stephens, E. L	Chappell's	Chappell's	By Express	By Agent	20
Dec. 28	Kibler, John F	Pomaria	Pomaria	By Express	By Agent	16
	Epsting, Capt. Geo	Pomaria	Pomaria	By Express	By Agent	16
	Hilus, Geo. L. D	Pomaria	Pomaria	By Express	By Agent	16
	Sligh, Rev. John C	Pomaria	Pomaria	By Express	By Agent	20
	McGraw, B. F	Newberry	Newberry	By Express	By Agent	20
	Harman, Thos. F	Newberry	Newberry	By Express	By Agent	20
		OCONEE	COUNTY.			
1883.						
Nov. 30	Ostendorff, J. H	Walhalla	Walhalla	By Express	By Agent	20
	Bullwinckle, Menke	Walhalla	Walhalla	By Express	By Agent	20
	Gaines, T. R	Ft. Madison	Ft. Madison	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 30	Kay, G. W	Westminster	Westminster	By Express	By Agent	20
	Sitton, F. L	Seneca City	Seneca City	By Express	By Agent	20
	Shanklin, J. J	Seneca City	Seneca City	By Express	By Agent	20
	Ellison, A. H	Seneca City	Seneca City	By Express	By Agent	20
	Wright, Pinckney	Seneca City	Seneca City	By Express	By Agent	20
	Berry, Earle	Seneca City	Seneca City	By Express	By Agent	20
	Cary, W. H	Seneca City	Seneca City	By Express	By Agent	20
	Cary, John C	Seneca City	Seneca City	By Express	By Agent	20
	Cole, W. H	Seneca City	Seneca City	By Express	By Agent	20
	Tribble, R. M	Seneca City	Seneca City	By Express	By Agent	20
	Buller, Robert F	Seneca City	Seneca City	By Express	By Agent	20
	Regular, Charlie	Seneca City	Seneca City	By Express	By Agent	20
	Mills, W. F	Seneca City	Seneca City	By Express	By Agent	20
	Lewis, J. M	Seneca City	Seneca City	By Express	By Agent	20
	Lewis, Thomas J	Seneca City	Seneca City	By Express	By Agent	20
	Lewis, Ben	Seneca City	Seneca City	By Express	By Agent	20
	Langston, L. E	Seneca City	Seneca City	By Express	By Agent	20
	James, J. K	Seneca City	Seneca City	By Express	By Agent	20
	Harper, James G	Seneca City	Seneca City	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883. Nov. 30	Harper, Thomas	Seneca City	Seneca City	By Express	By Agent	20
	Harper, J. W.	Seneca City	Seneca City	By Express	By Agent	20
	Hamilton, Wm. H.	Seneca City	Seneca City	By Express	By Agent	20
	Fletcher, Rev. R. A.	Seneca City	Seneca City	By Express	By Agent	20
	Phillips, Nathaniel.	Long Creek	Walhalla	By Express	By Agent	20
	Thrift, W. H.	Long Creek	Walhalla	By Express	By Agent	20
	Sanders, C. G.	Westminster	Westminster	By Express	By Agent	20
	Allen, David	Westminster	Westminster	By Express	By Agent	20
	Dickson, John D.	Westminster	Westminster	By Express	By Agent	20
	Zimmerman, A.	Westminster	Westminster	By Express	By Agent	20
	Blair, Hugh	Westminster	Westminster	By Express	By Agent	20
	Reid, R. C.	Westminster	Westminster	By Express	By Agent	20
	Hartfert, D. T.	Westminster	Westminster	By Express	By Agent	20
	Hartfert, A. W.	Westminster	Westminster	By Express	By Agent	20
	Gilmer, R. Lee.	Westminster	Westminster	By Express	By Agent	20
	Pendergrast, Wm.	Westminster	Westminster	By Express	By Agent	20
	Cook, J. A.	Fort Madison	Westminster	By Express	By Agent	20
	Jones, Leonard T.	Fort Madison	Westminster	By Express	By Agent	20
	Jenkins, Fenmore.	Fort Madison	Westminster	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 30	Lyles, Jas. G	Mountain Rest	Westminster	By Express	By Agent	20
	Davis, W. R	Fair Play	Seneca City	By Express	By Agent	20
	Bodie, W. W	Fair Play	Seneca City	By Express	By Agent	20
	Puller, Jas. H	Fair Play	Seneca City	By Express	By Agent	20
	Hoblin, Annica	Fair Play	Westminster	By Express	By Agent	20
	Holland, W. W	Fair Play	Seneca City	By Express	By Agent	20
	Sanders, J. B	Oakway	Westminster	By Express	By Agent	20
	Beardon, Jno. A	Oakway	Westminster	By Express	By Agent	20
	Beardon, Jas. W	Oakway	Westminster	By Express	By Agent	20
	Beardon, Andrew	Oakway	Westminster	By Express	By Agent	20
	Beardon, Saml. H	Oakway	Westminster	By Express	By Agent	20
	Beardon, W. T	Oakway	Westminster	By Express	By Agent	20
	Cain, Robt. M	Oakway	Westminster	By Express	By Agent	20
	Messer, M. S	Tugaloo	Westminster	By Express	By Agent	20
	Shelor, R. W	Tugaloo,	Seneca City	By Express	By Agent	20
	Sanders, Elza	Fall Creek	Walhalla	By Express	By Agent	20
	Adair, L. V	Fall Creek	Walhalla	By Express	By Agent	20
	Wilson, J. J	Fall Creek	Walhalla	By Express	By Agent	20
	Littleton, T. M	Fall Creek	Walhalla	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883. Nov. 30	Kerr, A. O	Walhalla	Walhalla	By Express	By Agent	20
	Sullivan, A. M	Walhalla	Walhalla	By Express	By Agent	20
	Ansel, M	Walhalla	Walhalla	By Express	By Agent	20
	Strother, R. C.	Walhalla	Walhalla	By Express	By Agent	20
	Strother, W. A	Walhalla	Walhalla	By Express	By Agent	20
	Crenshaw, H. K	Walhalla	Walhalla	By Express	By Agent	20
	Young, A. W	Walhalla	Walhalla	By Express	By Agent	20
	Boyd, W. E	Walhalla	Walhalla	By Express	By Agent	20
	Burley, W. W	Walhalla	Walhalla	By Express	By Agent	20
	Hunnicutt, J. E	Walhalla	Walhalla	By Express	By Agent	20
	Hunnicutt, S. A	Walhalla	Walhalla	By Express	By Agent	20
	Rowland, George	Walhalla	Walhalla	By Express	By Agent	20
	Rowland, H. H	Walhalla	Walhalla	By Express	By Agent	20
	Verner, Hon. J. S	Walhalla	Walhalla	By Express	By Agent	20
	Vandiver, Miss Vesta	Walhalla	Walhalla	By Express	By Agent	20
	Vandiver, T. J	Walhalla	Walhalla	By Express	By Agent	20
	Mickley, J. F	Walhalla	Walhalla	By Express	By Agent	20
	Kuhtman, H. W	Walhalla	Walhalla	By Express	By Agent	20
	Keith, W. C	Walhalla	Walhalla	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Nov.	30	Hunter, J. R.	Walhalla	Walhalla	By Express	By Agent	20
		Hunnicutt, Ahneda	Walhalla	Walhalla	By Express	By Agent	20
		Holleman, J. W	Walhalla	Walhalla	By Express	By Agent	20
		Ostendorff, J. H	Walhalla	Walhalla	By Express	By Agent	20
		Neville, W. J	Walhalla	Walhalla	By Express	By Agent	20
Dec.	28	Verner, L. H	Bachelor's Retreat	Westminster	By Express	By Agent	16
		Alexander, H. F.	Walhalla	Walhalla	By Express	By Agent	16
		Welderken, M. C	Walhalla	Walhalla	By Express	By Agent	16
		Ostendorff, Fred	Walhalla	Walhalla	By Express	By Agent	16
		Maret, Samuel H	Tugaloo	Westminster	By Express	By Agent	16
		Massey, S. J	Walhalla	Walhalla	By Express	By Agent	16
		Graham, Bascom	Walhalla	Walhalla	By Express	By Agent	16
			ORANGEBURG	COUNTY.			
Nov.	26	Dukes, William H	Orangeburg	Orangeburg	By Express	By Agent	20
		Dukes, John H	Orangeburg	Orangeburg	By Express	By Agent	20
		Riley, J. Rhett	St. Matthew's	St. Matthew's	By Express	By Agent	20
		Zimmerman, John W	Orangeburg	Orangeburg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. fo Fish.
1883.						
Nov. 26	Barton, William J.	Orangeburg	Orangeburg	By Express	By Agent	20
	Carson, R. A.	Orangeburg	Orangeburg	By Express	By Agent	20
	Riley, M. M.	Orangeburg	Orangeburg	By Express	By Agent	20
	Riley, A. B.	Orangeburg	Orangeburg	By Express	By Agent	20
	McCants, Thomas B.	Orangeburg	Orangeburg	By Express	By Agent	20
	King, D. A.	Orangeburg	Orangeburg	By Express	By Agent	20
	Gramlin, Paul F.	Orangeburg	Orangeburg	By Express	By Agent	20
	Gardner, Henry H.	Orangeburg	Orangeburg	By Express	By Agent	20
	Foxworth, Samuel P.	Orangeburg	Orangeburg	By Express	By Agent	20
	Phillips, W. F.	Orangeburg	Orangeburg	By Express	By Agent	20
	Stroman, P. B.	Orangeburg	Orangeburg	By Express	By Agent	20
	Stroman, Mrs. L. C.	Orangeburg	Orangeburg	By Express	By Agent	20
Dec. 28	Summer, Dr. J. W.	Orangeburg	Orangeburg	By Express	By Agent	20
Nov. 26	Smith, R. J	Orangeburg	Orangeburg	By Express	By Agent	20
	Smith, T. L.	Orangeburg	Orangeburg	By Express	By Agent	20
	Snell, H. N.	Orangeburg	Orangeburg	By Express	By Agent	20
	Johnson, W. A.	White Mills	Orangeburg	By Express	By Agent	20
	Johnson, J. D.	White Mills	Orangeburg	By Express	By Agent	20
	Oliver, W. W.	St. Matthew's	St. Matthew's	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
Nov.	26	Snider, W. T.	Elloree	St. Matthew's	By Express	By Agent	20
		Snider, Dr. A. M	Elloree	Orangeburg	By Express	By Agent	20
		Whaley, Thos. B	Orangeburg	Oraugeburg	By Express	By Agent	20
		Livingston, J. H	Orangeburn	Orangeburg	By Express	By Agent	20
Dec.	28	Hooker, J. O. A	Central Hill	Orangeburg	By Express	By Agent	16
			PICKENS	COUNTY.			
Nov.	22	Lawrence, W. B	Central	Central	By Express	By Agent	20
		Lawrence, W. R	Central	Central	By Express	By Agent	20
		Lawrence, Jno. H	Central	Central	By Express	By Agent	20
		Martin, T. C	Central	Central	By Express	By Agent	20
		Hester, R. A	Central	Central	By Express	By Agent	20
		Hester, W. H	Central	Central	By Express	By Agent	20
		Gassaway, Walter L	Central	Central	By Express	By Agent	20
		Gaines, R. G	Central	Central	By Express	By Agent	20
		Clardy, W. R	Maynard	Easley	By Express	By Agent	20
		Latham, J. R	Maynard	Easley	By Express	By Agent	20
		Orr, W. W	Maynard	Easley	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 22	Bates, E. H	Maynard	Easley	By Express	By Agent	20
	Bower, R. A	Pickens	Easley	By Express	By Agent	20
	Moulding, Jno	Pickens.	Easley	By Express	By Agent	20
	Holder, Rev. B	Pickens	Easley	By Express	By Agent	20
	Durham, L. R	Pickens	Easley	By Express	By Agent	20
	Anthony, J. F	Pickens	Easley	By Express	By Agent	20
	Haltiwanger, C. L	Pickens	Easley	By Express	By Agent	20
	Newton, J. H	Pickens	Easley	By Express	By Agent	20
	Lendhardt, D. B	Easley	Easley	By Express	By Agent	20
	Sheriff, Alfred	Easley	Easley	By Express	By Agent	20
	Sheriff, W. M	Easley	Easley	By Express	By Agent	20
	Williams, J. R	Easley	Easley	By Express	By Agent	20
	Griffin, E. S	Rice's	Easley	By Express	By Agent	20
	Haltiwanger, W. R	Liberty	Easley	By Express	By Agent	20
	Boggs, W. B	Central	Central	By Express	By Agent	20
	Boggs, J. C. C	Central	Central	By Express	By Agent	20
Dec. 28.	Williams, M. F	Briggs	Easley	By Express	By Agent	16
	Bradley, A	Maynard	Easley	By Express	By Agent	16
	Lenhardt, R	Easley	Easley	By Express	By Agent	16

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Dec. 28	Higgins, T. B.	Easley	Easley	By Express	By Agent	16
	Maulding, Joab	Pickens	Easley	By Express	By Agent	20
	Berry, M. B.	Easley	Easley	By Express	By Agent	20
		RICHLAND	COUNTY.			
Dec. 15	Jones, C. W.	Grovewood	Columbia	Not Shipped	To Self	20
19	Jackson, Jacob	Columbia	Columbia	Not Shipped	To Self	20
Nov. 24	Lown, L. L.	Columbia	Columbia	Not Shipped	To Self	20
23	Gregory, Jno. W.	Columbia	Columbia	Not Shipped	To Self	20
24	Gregory, F. W.	Columbia	Columbia	Not Shipped	To Self	20
17	Kirby, J. Thos.	Columbia	Columbia	Not Shipped	To Self	20
23	S. J. Roof	Columbia	Columbia	Not Shipped	To Self	20
17	Feaster, J. C. C.	Columbia	Columbia	Not Shipped	To Self	20
Dec. 1	Cromer, J. A.	Columbia	Columbia	Not Shipped	To Self	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		SPARTANBURG	COUNTY.			
1883. Nov. 22	Choice, Wm	Shoally	Spartanburg	By Express	By Agent	20
	Kilgore, B. F	Woodruff	Spartanburg	By Express	By Agent	20
	Cleveland, Jesse T	Spartanburg	Spartanburg	By Express	By Agent	20
	Bonner, Calvin	Martinsville	Spartanburg	By Express	By Agent	20
	Mitchell, Columbus W	Spartanburg	Spartanburg	By Express	By Agent	20
	Pearson, T. P	Wellford	Wellford	By Express	By Agent	20
	Green, Sam'l A	Spartanburg	Spartanburg	By Express	By Agent	20
	Green, W. R	Spartanburg	Spartanburg	By Express	By Agent	20
	Green, Arthur W	Spartanburg	Spartanburg	By Express	By Agent	20
	Bonner, B. F	Thicketty	Cowpens	By Express	By Agent	20
	Gamling, B. B	Gaffney	Gaffney	By Express	By Agent	20
	Pool, J. T	Cross Anchor	Clinton	By Express	By Agent	20
	Taylor, P. H	Cross Anchor	Clinton	By Express	By Agent	20
	Pearson, W. D	Woodruff	Spartanburg	By Express	By Agent	20
	Foster, S. Jones	Rich Hill	Rich Hill	By Express	By Agent	20
	Cleveland, J. F	Spartanburg	Spartanburg	By Express	By Agent	20
	Clark, B	Spartanburg	Spartanburg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 22	Clark, Weild	Spartanburg	Spartanburg	By Express	By Agent	20
	Clark, A. J	Spartanburg	Spartanburg	By Express	By Agent	20
	Centrell, John A	Spartanburg	Spartanburg	By Express	By Agent	20
	Willis, F. E	Spartanburg	Spartanburg	By Express	By Agent	20
	Mason, T. E	Spartanburg	Spartanburg	By Express	By Agent	20
	Chapman, A. M	Clifton	Cowpens	By Express	By Agent	20
	Gates, J. P	Millville	Spartanburg	By Express	By Agent	20
	Halchett, Geo. M	Millville	Spartanburg	By Express	By Agent	20
	Hog, Thos. F	Millville	Spartanburg	By Express	By Agent	20
	Walden, F	Millville	Spartanburg	By Express	By Agent	20
	Alexander, Glenn	Millville	Spartanburg	By Express	By Agent	20
	Bagwell, Wiley	Drummondville	Spartanburg	By Express	By Agent	20
	Landford, E. F	Cavin's	Spartanburg	By Express	By Agent	20
	McAbee, A. J	Cavin's	Spartanburg	By Express	By Agent	20
	Willis, W. H	Cavin's	Spartanburg	By Express	By Agent	20
	Walden, Oscar A	Millville	Spartanburg	By Express	By Agent	20
	Pearson, T. P	Wellford	Wellford	By Express	By Agent	20
	Miller, J. D	Wellford	Wellford	By Express	By Agent	20
	Miller, J. J	Wellford	Wellford	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 22	McElreth, W. A	Wellford	Wellford	By Express	By Agent	20
	Daniel, W. T	Landrum	Landrum	By Express	By Agent	20
	Thomas, S. M	Walnut Grove	Spartanburg	By Express	By Agent	20
	Tuck, John D. A	Shoally	Spartanburg	By Express	By Agent	20
	Tuck, J. H	Shoally	Spartanburg	By Express	By Agent	20
	Tuck, G. W	Shoally	Spartanburg	By Express	By Agent	20
	Tuck, Edgar	Shoally	Spartanburg	By Express	By Agent	20
	Tuck, Mrs. Mary J	Shoally	Spartanburg	By Express	By Agent	20
	Morgan, O. P	Crawfordville	Wellford	By Express	By Agent	20
	Green, L. A	Crawfordville	Wellford	By Express	By Agent	20
	Morgan, W. L	Crawfordville	Wellford	By Express	By Agent	20
	Mason, B. P	Duncan's	Duncan's	By Express	By Agent	20
	Rubles, L. H	Duncan's	Duncan's	By Express	By Agent	20
	Fleming, L. H	Duncan's	Duncan's	By Express	By Agent	20
	Hadden, W. C	Duncan's	Duncan's	By Express	By Agent	20
	Moore, W. A	Duncan's	Duncan's	By Express	By Agent	20
	Moore, O. M	Duncan's	Duncan's	By Express	By Agent	20
	Wingo, T. W	Duncan's	Duncan's	By Express	By Agent	20
	Wheeler, Jno	Duncan's	Duncan's	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON 1883, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	BY OR TO WHOM DELIVERED.	No. of Fish.
1883.						
Nov. 22	Sloan, J. F	Pacolet	Spartanburg	By Express	By Agent	20
	Tuck, W. J	Shoally	Spartanburg	By Express	By Agent	20
	Edgins, Jno	Shoally	Spartanburg	By Express	By Agent	20
	Chapman, Herman M	Clifton	Cowpens	By Express	By Agent	20
	Mason, Luther	Spartanburg	Spartanburg	By Express	By Agent	20
	Sprous, Jno. C	Spartanburg	Spartanburg	By Express	By Agent	20
	Gilbert, D. P	Spartanburg	Spartanburg	By Express	By Agent	20
	Snoddy, J. R	Wellford	Wellford	By Express	By Agent	20
	Hodge, J. R	Burnt Factory	Spartanburg	By Express	By Agent	20
	Montgomery, W. B	Spartanburg	Spartanburg	By Express	By Agent	20
	Huff, E. B	Spartanburg	Spartanburg	By Express	By Agent	20
	Finger, W. A	Valley Fall	Spartanburg	By Express	By Agent	20
	Thomas, W. T	Cavin's	Cavin's	By Express	By Agent	20
	Cleveland, Tim	Spartanburg	Spartanburg	By Express	By Agent	20
	Miller, S. C	Millville	Spartanburg	By Express	By Agent	20
	Drummond, Harvey E	Drummondsville	Spartanburg	By Express	By Agent	20
	Foster, Dr. J. A	Spartanburg	Spartanburg	By Express	By Agent	20
	Ezell, J. S	Woodruff	Spartanburg	By Express	By Agent	20
	Ezell, L. C	Woodruff	Spartanburg	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.							
Nov.	22	Anderson, F. L	Reidville	Spartanburg	By Express	By Agent	20
Dec.	28	Huff, E. B	Spartanburg	Spartanburg	By Express	By Agent	16
		DeShields, J. B	Cross Anchor	Spartanburg	By Express	By Agent	16
		Willis, C. W	Spartanburg	Spartanburg	By Express	By Agent	16
		Wofford, John T. H	Drummondville	Spartanburg	By Express	By Agent	16
		Wofford, Lester C	Spartanburg	Spartanburg	By Express	By Agent	16
		Pegler, W. H	Campobello	Campobello	By Express	By Agent	20
		Snoddy, J. R	Wellford	Wellford	By Express	By Agent	20
		Wofford, J. W	Spartanburg	Spartanburg	By Express	By Agent	20
		Corry, J. A	Campobello	Campobello	By Express	By Agent	20
		Lee, J. A	Spartanburg	Spartanburg	By Express	By Agent	20
			SUMTER	COUNTY.			
Nov.	19	Brown, O. S.	Sumter	Sumter	By Express	By Agent	20
		Watson, H. C	Bishopville	Camden	By Express	By Agent	20
		Stucky, Capt. J. W	Bishopville	Sumter	By Express	By Agent	20
		Cousar, A. Flinn	Bishopville	Sumter	By Express	By Agent	20
		Dargan, John J	Sumter	Sumter	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1883, by South Carolina Fish Commission; Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
		UNION	COUNTY.			
1883.						
Nov. 22	Little, Robt.	Kelton	Union	By Express	By Agent	20
	Spears, H. L.	Skull Shoals	Jonesville	By Express	By Agent	20
	Meador, W. B.	Meador	Santuc	By Express	By Agent	20
	Dillard, Seaborne	Cross Anchor	Clinton	By Express	By Agent	20
Dec. 28	Crossly, Stephen	Meador	Union	By Express	By Agent	16
	Bonner, Geo. W.	Jonesville	Jonesville	By Express	By Agent	16
	Kendrick, J. S.	Jonesville	Jonesville	By Express	By Agent	16
		WILLIAMSBURG	COUNTY.			
Nov. 19	Burgess, Dr. Jas. M.	Greelyville	Lane's	By Express	By Agent	20
		YORK	COUNTY.			
Nov. 21	Fewell, Wm. B.	Rock Hill	Rock Hill	By Express	By Agent	20
	Wood, L. T.	Clay Hill	Rock Hill	By Express	By Agent	20
	Duff, G. C. H.	Clay Hill	Rock Hill	By Express	By Agent	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season 1883, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Concluded.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	By or to Whom Delivered.	No. of Fish.
1883.						
Nov. 21	Boyd, W. F	Fort Mill	Fort Mill	By Express	By Agent	20
	Boyd, Z. D	Fort Mill	Fort Mill	By Express	By Agent	20
Nov. 19	Conner, B. L	Yorkville	Yorkville	By Express	By Agent	20
	Herndon, W. H	Yorkville	Yorkville	By Express	By Agent	20
	Knox, R. E	Yorkville	Chester	By Express	By Agent	20
	Neeley, J. Harvey	Smith's T. O	Chester	By Express	By Agent	20
	Thompson, A. M	Zeno	Clover	By Express	By Agent	20
	Boyd, J. P	Zeno	Clover	By Express	By Agent	20
	Sandifer, G. B	Tirzah	Rock Hill	By Express	By Agent	20
	Crook, R. L	Rock Hill	Rock Hill	By Express	By Agent	20
	Garrison, W. S	Rock Hill	Rock Hill	By Express	By Agent	20
	Hutchison, Jas. P	Rock Hill	Rock Hill	By Express	By Agent	20
	White, Dr. W. J	Rock Hill	Rock Hill	By Express	By Agent	20
	White, A. H	Rock Hill	Rock Hill	By Express	By Agent	20
Dec. 28	Spears, Jas. B.	Rock Hill	Rock Hill	By Express	By Agent	16
	Beckham, T. C	Rock Hill	Rock Hill	By Express	By Agent	16
	May, W. S	Rock Hill	Rock Hill	By Express	By Agent	16
	Campbell, T. W	Clay Hill	Rock Hill	By Express	By Agent	16
	Wherry, Wm. C	Rock Hill	Rock Hill	By Express	By Agent	16

EXPOSITION.

In the last Annual Report of the Department we recommended that the sum of $10,000 should be appropriated for the purpose of making an exhibit of the resources of South Carolina at the World's Industrial and Cotton Centennial Exposition, to be held in New Orleans from December, 1884, to May, 1885.

The recommendation was approved by the Legislature and the amount suggested appropriated.

Nearly the entire force of the Department has been engaged upon this work this year, and it has consumed a greater part of the time of all the officers and employees.

According to the rules of the Exposition management, the following will constitute a State or collective exhibit:

1. Collective State, County or Parish, District or Municipal exhibits may comprise collections of natural resources, such as

Illustrations, Models, actual or prepared specimens of Animals, Birds, Fishes, Insects, etc.

Geological Specimens, Fossils, Petrifactions, Shells, etc.

Prehistoric Relics, Antiquities and Curiosities.

Minerals and Ores.

Specimens of Soils from the various geological formations of the section represented, with analyses.

Specimens of Waters and Mineral Waters of the section represented, with analyses.

Grasses, Fibres, Mosses, etc.

Specimens of Native Woods in convenient form.

Products of Forestry direct.

Agricultural Products of every description, Fruits, natural, dried or preserved.

Manufactured Food Products and Textile Fabrics peculiar to the section represented.

Geological, Botanical, Entomological and Ornithological Collections from the section represented, properly classed and designated.

Collections may be composed of actual or prepared specimens, or of illustrations, in photographs, or prints, or models of papier-mache, or other material, and may embrace official maps, charts, reports, etc.

In the manufacturing States the Collective State Exhibit can be rendered additionally attractive by securing models, diagrams, photographs of exteriors and interiors, with cuts of the machinery, of the crude material, of the material in process of manufacture, also cuts or views of the products of said machinery. It is also desirable to include charts showing the production and profits of manufactures, the wages of labor, skilled and unskilled, and the complete statistics of this subject properly arranged.

Entries for competition cannot be made by persons or firms in a Collective State Exhibit. State Commissioners may, however, receive and display, in their Collective Exhibit, a sample of each manufacturing industry of their State, provided the same can be accommodated within the space allotted to the respective States.

2. Individual or associated collective exhibits may comprise collections of articles or products of a similar character, or such as may be installed in accordance with the grouping and classification already announced.

3. Collective exhibits for location in Special Structures provided by the exhibitors, outside of the Main Building, are not included in these definitions, and may be arranged as suits the exhibitors, after proper entry has been made.

4. The department of Education and Instruction is intended to be a national and international exhibit in itself, and to this end it is desired that all exhibits in this group shall, without losing their distinctive character, be installed in this department.

Realizing the great importance of making an exhibit that would be fully creditable to the State, the various matters to be looked after were assigned competent assistants. Mr. Arthur R. Guerard of Charleston was put in charge of the Mineral Department, and to have the co-operation of the Chemist of the Agricultural Department. Mr. H. W. Ravenel of Aiken was given the Botanical Department. Col. R. M. Sims of Columbia, the Horticultural Department. Dr. G. E. Manigault of Charleston, the Department of Natural History. Mr. C. J. Huske, our Superintendent of Fisheries, the exhibit of food and other fishes. The collection of agricultural specimens was undertaken by the Commissioner. Mr. E. L. Roche, the Special Assistant of the Department, visited the various Counties and urged upon the people the importance of organized effort for the promotion of the State's exhibit. He everywhere met with encouragement, and the effect has been seen in the great interest manifested.

Mr. Guerard visited most of the important mineral localities, including the Piedmont section, the Red Hill or Kaolin section, and the phosphatic region of the State. Where he could not go, he wrote, and sent circulars, giving directions for collecting minerals. He also invited the assistance of individuals and Institutes. Mr. Guerard found, by the 1st of October, that so few specimens had been voluntarily contributed that it would be necessary to engage special assistants: Mr. J. B. Heyward of Spartanburg, Mr. H. W. Kuhtman of Oconee, Prof. Wm. Hood of Abbeville, Mr. A. C. Garlington of Laurens, Mr. C. H. Green of Chester, who were each requested to work up certain Counties in their section of the State, to collect and see shipped to Columbia specimens of all the ores, minerals, &c., to be found. In addition to the minerals, Mr. Guerard's collection will embrace a fine display of marls and phosphates from the coast. He will also have two private collections of phosphatic fossils from Charleston, and a most unique collection of Indian relics from Chester. There will also be a large number of granites and other building stones.

In Colonel Sims's department there will be about six hundred jars of fruit—peaches, pears, apples, grapes, plums, quinces, cherries, crab apples and nectarines—preserved in alcohol and shown in beautiful glass museum jars of various sizes. The display will also include one hundred jars filled with canned fruit preserved in their own juices, and several hundred bottles of wine, and a large quantity of crystallized fruit. Colonel Sims also expects to make an extensive collection of Winter apples, pears and plums from the Piedmont and mountain region of the State.

Dr. Manigault's exhibit will be made up chiefly from the splendid specimens in the Charleston Museum, and which will finely represent the natural history of the State.

Mr. Ravenel's exhibit will embrace all of the native woods of value, the grasses and valuable plants.

Mr. Huske will make a full exhibit of the food fishes of the State, comprising about 230 specimens.

Manufactured goods from the various cotton factories will be on exhibition.

The Charleston Chamber of Commerce will probably make a rice exhibit; the Merchants' Exchange, a naval stores exhibit; the Cotton Exchange, a cotton exhibit; and the Miners' and Fertilizers' Exchange, a phosphate exhibit.

We are making every effort to have a proper representation of our water powers and a complete list of lands for sale in the State.

Nothing of any interest or value has been overlooked, and it is expected that the collection will be a complete representation of the unlimited resources of the State. While due regard has been paid to matters of small import, it is intended that the exhibit, as a whole, shall be essentially practical. The question is often asked, "What room is there for the investment of large capital in South Carolina?" and the exhibit is intended to answer that question.

The Agricultural display will occupy the largest and most conspicuous part of the exhibition; Cotton, Corn, Wheat, Oats, etc., arranged with reference to their importance. The Mineral and Phosphatic display will have due prominence. The Water Powers of the State will be shown by plats, maps, charts, etc. The products of Foresty, Woods, etc., will be fittingly shown. The Horticultural Department will include specimens of our finest fruits. The interest in fish culture throughout the whole country justifies the State in having this important element of her wealth properly represented. Hand-books of the State, pamphlets and other documents will be freely distributed, and the officers and employees of the Department will be present to furnish any information regarding the State that may be desired.

In the next Annual Report of the Department a full report will be submitted. Allusion is only made to this matter now to show its great importance and the work that has been done to carry out faithfully the directions of the Legislature.

PUBLICATIONS.

During the past year the Department has issued 35,000 copies of the Monthly Report, from April 15th to August 15th, both inclusive. These Reports contain the analyses of fertilizers made during the season, reports on the condition of the growing crops and other matters of agricultural interest. Besides these Monthly Bulletins, the Department has issued 17,170 circulars relating to agricultural matters and 6,734 in reference to the New Orleans Exposition, making the total number of publications for the year 58,904 copies.

The Commission has also distributed the greater part of 3,000 copies of the last Annual Report.

THE DEPARTMENT BUILDING.

The cost of the repairs on the building purchased for the use of the Department exceeded the architect's estimate. This could not be avoided, however, as bids for proposals to repair were advertised for and no satisfactory ones were received. The work was then placed under the direction of an experienced architect, and it was thoroughly and satisfactorily done. Owing to the fact that the cost was greater than the estimate, the work of repairing was stopped before all the necessary repairs were made, but only a small portion of the building has been left in this condition, and that can be finished at a small expense.

Since the last Report was made all of the offices of the Department have been removed from the State House to this building, and it is now occupied for the purposes for which it was intended. It is in every respect suitable for the Department, is an ornament to the city, is a credit to the State, and by its imposing appearance impresses strangers with the importance attached to agriculture in this State, and is an indication of agricultural progress.

STATISTICAL INFORMATION.

It has been customary to submit with each Annual Report our estimates of the area and yield of the various crops cultivated in this State. This information is published, as far as practicable, in the monthly bulletins of the Department during the year, but it is not possible to have this information as accurate early in the year as it is later, after the crop has been made. It has therefore been found desirable to publish both the area and the yield as corrected in the Annual Report. Another reason for this publication is that the statistics are preserved in permanent form.

The plan pursued by this Department in crop reporting and in the collection and compilation of these statistics is the same as that used by the National Department of Agriculture and explained in the Department's Report for September, 1884, as follows:

MEANING OF CROP-REPORTING FIGURES.

There is occasional inquiry as to the meaning of figures used in crop reporting. The standard of comparison, 100, in reports of condition of growing crops, means that the plants occupy the ground fully, exhibiting a complete "stand"; that they appear in full healthfulness, uninjured by disease or insects; and that they have a medium growth for the date at which the report is made. It means a condition of full development that can only be exceeded by some luxuriance of growth. Hence it is absurd to report 150 for condition for most crops. It would misrepresent the comparative capacity for production. Cotton, for instance, with medium growth and a full healthy stand, promises better results than with great luxuriance or excess of "weed," which postpones fruiting and gives smaller results, unless the date of killing frost should be unusually late, in which case a larger yield might accrue. But great growth of stalk in a short season is dreaded by cotton-growers. So with wheat and other cereals; excessive growth is not to be desired, as a large yield of grain is more valuable than abundance of straw, which is still burned by many wheat-growers. In the matter of hay, luxuriance of growth is an element of importance, and some enlargement of the standard, some increase above 100, is admissible.

It will readily be seen that "condition" cannot be expressed in bushels or pounds. There are no bushels of corn in a field just sprouting, and it is a misnomer to call first growth a final product. It is the result of characteristic American haste thus to discount the experiences and accidents of the whole season, and say that three inches of potato vine above the surface means 90 bushels of potatoes per acre. Absurd blunders in crop-report reading have often been made in that way. Some of the most positive failures in the potato crop have followed a condition of average healthfulness and good growth on the 1st of August. The months of August and September determine the potato harvest. Yet the report of condition on the 1st of August, if favorable, will be sure to be quoted in September or later, when the crop has been destroyed, as an evidence of inaccuracy of the report, when it only evidences the thoughtlessness or unfairness of the critic.

It is true that the public want to know what these reports of early growth indicate. It may be proper to gratify this public anxiety, if it is understood that the expected result is subject to the limitations and contingencies of the future.

Any intelligent reader will perceive from the above that, so far as growth may indicate a harvest, 100 must point to different results in different districts. It may promise 35 bushels per acre in the Ohio Valley, or 15 on the Gulf Coast. Each State must be considered separately, and all returns consolidated for an average of the whole field. This average, which has in some years been reported at 28 bushels for corn, would be less with a larger proportionate area in low-yielding districts, and larger with an increased proportion in the great corn-growing States. So it will be seen at once that a definite figure to represent 100 for corn, wheat, or any other crop, as a whole, cannot be made exact and unchangeable, on account of the changes in the territory represented and other circumstances producing variations in average yield. Yet there is no difficulty, if all these changing circumstances are considered, in finding the closely approximate indications of these figures of condition.

Another fact is obvious from the above, that 100 indicates more than an "average" crop. Corn in this country, in ten years past, has ranged from 18 to 30 bushels per acre in different years, with an average of 26. Wheat has averaged about 10 bushels in the worst season, and nearly 14 in the best, with an average for ten years a little above 12.

An average crop is the actual mean rate of yield in a series of years, which include some marked by 100 or more, and others by a much lower figure. Then 100 means a *full* crop, not an *average* one.

Perhaps another difficulty may puzzle the brains of a reader of crop returns. He may wonder why July figures are so often higher than those of August, September and October; sometimes higher than those of June. Then he may be surprised because some crops appear so generally to decline. This is apt to occur in cotton returns. It is simply because June and July are usually favorable to growth, while April and May, from frost or rain, may be unpropitious for planting and germination, and August and September are more liable to drought, subject to insect invasion, rust and blight. The critical time, in which insects and disease make havoc, is just before maturity and fruitage. There are other crops that have shorter seasons and fewer changes. Hay is soon made. If conditions are favorable on the first of June a drought must come speedily to affect the expected result. Corn that is well reported in July and August may be represented by 100 in October, or a long drought or a September frost may cut it down to 50. These explanations are so obvious as to seem unnecessary, yet there are repeated inquiries showing the necessity: and they are given here for the benefit of all who fail to understand the purport of the figures.

So much has been said of "condition." As the harvest approaches, the result is asked by Counties in plain figures—the yield per acre in bushels or pounds, the aggregate County product compared with the previous year, etc. At the time of seeding the area in each County is asked, 100 representing the number of acres harvested the previous year. Our system in its essential features is the one used by the most advanced nations in the world; it has been adopted by the State Bureaus, and by a few newspapers that attempt to give really systematic crop returns. Its essential feature is the decimal system, which is becoming the cosmopolitan plan in weights and measures. It was first used by this Department in crop returns in 1864, upon the organization of its statistical work. It had previously been used in crop reporting by Mr. Orange Judd in the American Agriculturist, who was perhaps the first to use it in this country. It furnishes simply an opportunity for nicer discriminations than the old unsystematic and indefinite report of "half a crop," "a failure," or "serious damage," the intended meaning of which no one can put in positive figures. A reporter's deliberate judgment can certainly be presented far more accurately in decimals of a full crop.

The popularity of the crop reports is attested by the fact that nearly every newspaper, grain dealer or speculator assumes to have original sources of crop information, in some cases with the least modicum of ground for the assumption. Pretentious estimates, detailed and specific, have gone the rounds of the metropolitan and country press unchallenged and apparently accepted, which have been copied from the Department estimates of *the previous year*, and made to do duty for the new crop as original information from trustworthy private sources. It would be well if the press were more discriminating, making distinction at least between well-digested and systematic efforts of legitimate newspapers in statistical collection and the multitude of charlatans and adventurers and tools of speculators. There is room for all legitimate work in crop statistics; and the best will be done with modesty and in the spirit of fairness and honesty.

The Department has about 500 correspondents, representing nearly every township in the State, who make monthly reports during the crop season on blanks sent them from this office. They receive no compensation for their services, but are furnished copies of all the publications of the Department. They manifest great interest in the work and render the State invaluable service. Some of them have been reporting for everal years and have become very expert and accurate in reporting. In addition to answering the printed questions sent them, they note and report any other matters of interest, and often contribute articles to the columns of the Monthly Reports.

The importance of accurate statistical information, we presume, is admitted by every intelligent person, and believing this we will not present any reasons to show its necessity.

The usual census of population will, no doubt, be ordered by the Legislature in 1885. It would involve only a comparatively small additional appropriation to extend the scope of the work so as to include agricultural statistics, and it is recommended that this be done and the direction of this part of the work be assigned to the Agricultural Department.

In 1883 the area in cotton was 1,428,523 acres, and in 1884 1,418,614 acres, a decrease of 9,909 acres. The area in corn in 1883 was 1,384,411 acres, and in 1884 1,372,821 acres, a decrease of 11,590 acres. All of the reports showing the yield of these crops did not reach us in time for this Report, but an estimate based upon such returns as have been received shows that the yield of corn in 1884 will average ten bushels per acre, making the total crop 13,728,210 bushels, against 10,627,110 bushels in 1883, an increase in yield of 2,101,100 bushels. The yield of cotton is estimated from the same returns at 147 pounds of lint per acre. If this yield is obtained, the production this year will amount to 449,339 bales of 475 pounds weight, against 392,401 bales in 1883. The season for picking cotton was remarkably favorable and the entire crop was gathered in fine condition.

The area in wheat was increased from 182,547 acres in 1883 to 197,631 acres in 1884, and the yield from 1,397,051 bushels in 1883 to 1,946,817 bushels in 1884.

The area in oats was increased from 321,985 acres in 1883 to 341,866 in 1884, and the yield from 4,187,604 bushels in 1883 to 5,024,579 bushels in 1884.

The area in rice in 1883 was 76,354 acres, and in 1884 75,957 acres. The yield in 1883 was 43,919,968 pounds, and in 1884 44,057,580 pounds.

There is greater difficulty in estimating the area of the smaller crops, such as sorghum, sugar cane, potatoes, hay, etc., than in the crops of greater importance, so that detailed estimates of the area and yield of these crops is not attempted, but the returns show a slight increase of area in all of them.

The reports to the Department on the condition of live stock show that stock of all kinds have been remarkably free from diseases of all kinds. A few losses of cattle from pleuro-pneumonia were reported. These cases, however, were not fully investigated, and it is possible that a mistake as to the causes of death may have been made. In Beaufort

County the "Texas fever" prevailed among cattle to a limited extent, but no serious losses were reported. Some losses occurred in Counties where the Stock Law has not been long in force, caused by confining too many cattle on small pasturage. Where surplus stock was disposed of the reports show that the remainder have had better attention than formerly, and the necessity for having them properly cared for has encouraged the introduction of better breeds. It is also stated that cattle confined are freer from disease than those allowed to run at large.

Penning sheep in pastures does not seem to protect them from destruction by dogs, as the correspondents report that the greatest losses are from the depredation from worthless curs. Cholera prevailed among hogs, but the losses were slight. A correspondent says: "Hogs completely separated from other hogs have had no cholera, but where there has been any mixture the disease has prevailed." Owing to the severity of the Winter, an unusually large number of pigs were lost. Improved breeds of swine are being introduced into many sections of the State.

LABOR.

The condition of labor was about as it has been for some years, but somewhat more easily obtained than in 1883. One hundred and fifty correspondents reported the condition of labor as "good," twenty as "bad," and eighty-seven as "indifferent."

FARM SUPPLIES.

It was estimated that 13 per cent. more farm supplies were purchased in 1884 than in 1883.

FERTILIZERS.

During the season of 1883 the tonnage tax was paid to this Department on 100,369 tons of fertilizers, and during the past season on 101,048 tons, showing an increase in 1884 over 1883 of 679 tons.

The following tables exhibit the area in cotton, corn, wheat, oats, rice and rye, by Counties and Townships:

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.

ABBEVILLE COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Abbeville	2,146	1,149	....	730	4	4,877
Bordeaux	3,987	1,222	....	613	....	7,243
Calhoun's Mills	4,194	1,541	....	1,193	1	5,191
Cedar Springs	2,366	1,178	....	583	....	4,118
Cokesbury	5,126	2,292	2	1,108	....	7,530
Diamond Hill	2,800	512	....	560	....	3,362
Donaldsville	3,386	965	7	1,076	....	2,768
Due West	3,353	1,625	6	1,387	....	7,704
Greenwood	3,547	3,840	11	1,315	....	6,386
Indian Hill	2,563	1,423	....	772	....	3,730
Long Cane	3,787	1,967	3	1,329	....	5,589
Lowndesville	5,061	2,078	....	1,549	....	6,840
Magnolia	3,476	1,462	1	855	11	5,755
Ninety-Six	4,002	4,250	11	1,438	....	6,679
Smithville	2,356	1,720	2	877	....	4,729
Whitehall	1,542	1,564	1	620	....	3,877
	53,692	28,788	44	16,005	16	86,378

Areas of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued.*

AIKEN COUNTY.

Townships.	Corn.	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Aiken	5,151	577	....	937	....	3,105
Chinquapin	1,392	310	7	420	....	904
Giddy Swamp	1,798	118	....	555	14	556
Gregg	2,178	249	12	71	....	1,662
Hammond	6,931	1,294	34	186	126	8,165
Hopewell	1,069	75	6	388	....	403
McTier	1,992	166	45	473	3	632
Millbrook	4,752	400	42	473	7	2,900
Rocky Grove	2,153	227	12	366	....	1,543
Rocky Spring	2,039	2,427	5	585	4	783
Shaw	2,323	292	2	435	....	2,566
Shultz	2,760	874	6	30	1	3,000
Silverton	4,556	50	....	5	228	3,602
Sleepy Hollow	6,911	319	27	113	54	5,149
Tabernacle	1,676	69	18	521	10	825
Ward's	2,400	168	18	90	1	1,746
Windsor	3,347	120	....	426	....	1,211
	53,428	7,735	234	6,074	448	38,752

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

ANDERSON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Anderson	317	357	....	81	....	207
Belton	3,037	1,531	7	1,794	....	4,665
Broadaway	3,665	1,644	3	869	....	4,517
Brushy Creek	4,832	985	6	1,401	1	4,729
Centreville	3,695	1,064	....	904	12	3,920
Dark Corner	3,232	718	3	867	....	2,735
Fork	3,119	1,476	9	1,350	....	4,268
Garvin	4,037	1,584	....	1,146	11	4,882
Hall	4,047	527	2	988	....	3,326
Honea Path	3,999	1,629	49	2,111	....	4,045
Hopewell	2,719	634	106	1,167	3	3,965
Martin	3,434	784	....	1,595	....	3,895
Pendleton	3,208	1,608	20	692	23	3,326
Rock Mills	2,880	1,277	....	705	....	2,558
Savannah	3,636	1,082	....	1,345	....	3,957
Varennes	3,812	1,652	....	1,217	....	4,765
Williamston	3,368	1,500	15	1,321	....	4,095
	57,037	20,052	220	19,553	50	63,855

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

BARNWELL COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Allendale	3,427	411	....	....	24	5,163
Bamberg	5,949	1,230	94	158	89	6,328
Barnwell	4,483	942	11	330	56	4,274
Beldoc	3,786	287	17	3	5	2,578
Bennett's Springs	5,007	863	82	110	29	5,178
Blackville	6,398	1,104	103	675	70	8,056
Buford's Bridge	3,672	437	93	90	339	4,033
Bull Pond	3,885	766	1	....	8	7,268
Fish Pond	3,271	344	8	138	176	2,197
Four Mile	5,804	240	30	43	21	5,173
George's Creek	6,099	618	178	593	122	4,612
Great Cypress	6,526	863	88	68	32	6,793
Midway	4,658	646	52	61	46	3,356
Red Oak	4,044	374	8	138	20	3,675
Richland	3,233	345	8	154	24	2,687
Rosemary	3,125	351	15	400	25	2,182
Sycamore	3,720	678	140	36	46	3,492
Three Mile	5,067	1,758	5	26	146	3,752
Williston	4,362	804	7	523	3	5,033
	86,515	13,061	940	3,546	1,281	85,810

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

BEAUFORT COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Beaufort	2,000	16			270	2,278
Bluffton Coosawhatchie	5,092	134			2,339	1,302
Hilton Head	873				36	616
St. Helena	2,935	6			114	5,930
Sheldon	3,908	30			2,538	2,998
Yemassee	1,062	31			7,353	100
	15,870	271			12,650	13,224

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

BERKELEY COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Christ Church Parish	825	186	....	3	100	798
St. Andrew's	2,162	78	....	5	121	1,577
St. James Goose Creek	10,062	1,442	....	2	2,085	6,222
St. James Santee	978	130	....	....	2,172	160
St. John's Berkeley	7,358	90	....	8	5,229	5,984
Edisto Island	1,445	982	....	....	511	2,717
Wadmalaw	1,040	40	....	....	3	1,600
John's Island	1,636	30	....	....	5	2,998
St. Stephen's	2,307	182	....	2	175	1,049
St. Thomas and St. Dennis	426	106	....	....	1,342	6,222
	27,767	3,266		20	11,743	29,327

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

CHARLESTON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Sullivan's Island, &c.						
St. Andrew's Parish	2,082	140	......	......	121	1,497
St. Phillip's Parish	115	278	......	......	3	5
Charleston	2,197					
	4,394	418	......	......	124	1,502

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

CHESTER COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Baton Rouge	7,161	1,465	137	1,796	....	9,314
Blackstock	4,516	1,732	27	1,437	....	5,015
Chester	6,384	2,838	19	1,020	....	9,900
Hallsellville	2,542	456	4	141	....	3,436
Hazlewood	5,082	1,733	....	1,273	....	6,663
Landsford	4,372	1,985	10	1,240	....	6,564
Lewisville	6,797	4,249	36	2,194	....	8,749
Rossville	4,314	1,326	8	687	....	4,668
	41,168	15,784	241	9,788	....	54,309

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

CHESTERFIELD COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Alligator	2,639	70	....	91	....	949
Cheraw	2,632	1,102	20	160	4	3,517
Cole Hill	2,723	152	5	71	3	400
Court House	4,787	840	3	229	4	3,566
Jefferson	3,925	565	30	447	....	2,585
Mount Croghan	4,740	1,236	94	812	....	2,676
Old Store	4,350	1,478	19	1,313	....	3,199
Steerpen	4,071	200	27	12	2	1,910
	29,867	5,643	198	3,135	13	18,802

Areas of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued.*

CLARENDON COUNTY.

Townships.	Corn.	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Brewington	740	43	....	....	49	315
Calvary	2,141	229	....	5	82	3,334
Concord	1,482	160	....	1	108	1,616
Douglass	1,291	231	....	34	38	522
Friendship	2,762	487	....	5	85	3,769
Fulton	1,365	98	....	5	31	1,700
Harmony	1,341	58	6	5	10	856
Manning	1,838	258	....	4	101	1,012
Midway	2,023	287	....	3	157	1,130
Mott's	1,600	298	2	29	240	953
Mount Zion	1,340	37	1	8	104	514
New Zion	1,719	145	....	....	63	832
Plowden's Mills	2,483	209	....	....	39	1,723
St. James	1,435	190	....	....	54	1,960
St. Mark's	1,189	33	....	....	67	786
St. Paul's	1,710	136	....	....	58	1,908
Sammy Swamp	2,119	173	21	22	101	1,491
Sandy Grove	800	....	....	....	69	460
Santee	3,010	25	....	....	144	2,693
	32,388	3,097	30	121	1,600	27,574

AREA OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

COLLETON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Adams Run	888	2			1,992	393
Bell's	4,867	651	5	4	437	678
Blake	1,410	25			4,012	173
Broxson	5,812	2,050	26	133	269	3,287
Burns	2,278	473			248	398
Cain	2,044	424	1	5	578	856
Collins	2,279	153	1	5	466	242
Dorchester	2,278	32			243	541
Fraser	561	19	17		2,011	366
George	2,686	793			720	1,022
Givham	2,275	821	17		360	396
Glover	2,053	35			104	366
Heyward	2,825	358		2	173	453
Koger	1,703	795	1		354	545
Lowndes	1,225	60			2,423	384
Sheridan	3,512	417	3	5	280	304
Verdier	3,537	181	24		681	496
Warren	5,739	1,012	49	61	632	1,225
	47,072	8,301	144	215	15,983	12,125

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

DARLINGTON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Antioch	1,848	539	1	103	4	1,885
Back Swamp	3,238	380	46	3	41	5,000
Cypress	2,822	819	201	280	46	2,790
Darlington	2,247	434	5	32	38	3,230
Ebenezer	2,320	495	3	27	43	3,067
Effingham	1,664	226	1	45	169	1,186
Florence	942	259	....	....	....	1,434
Hartsville	2,863	688	8	163	7	2,753
High Hill	3,514	567	3	117	87	3,524
James's Cross Roads	1,528	169	18	74	43	800
Levenworth	3,231	749	8	138	18	3,402
Lisbon	4,160	832	65	373	109	3,722
Lydia	3,228	353	13	240	36	3,324
Mechanicsville	2,921	56	50	....	....	3,277
Palmetto	2,444	878	12	55	34	5,072
Philadelphia	3,021	354	19	181	47	3,008
Society Hill	2,960	1,290	11	160	5	4,066
Stokes's Bridge	2,206	792	64	414	30	3,800
Swift Creek	3,733	772	6	250	38	3,212
Tans Bay	1,943	36	....	....	140	1,978
Timmonsville	1,465	476	37	96	69	1,465
	54,298	11,164	571	2,751	1,004	61,995

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

EDGEFIELD COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Blocker	2,730	1,897	....	467	....	2,196
Coleman	5,316	1,892	....	836	....	6,600
Collier	2,381	723	....	147	....	4,600
Collins	1,790	1,228	....	456	....	2,540
Cooper	4,096	3,673	6	1,050	....	5,224
Germanville	2,348	1,835	....	932	....	2,077
Gray	3,190	3,931	9	690	....	4,272
Gregg	250	45	....	20	....	260
Hibbler	2,534	2,889	....	711	....	3,168
Huiet	3,983	1,736	....	1,025	....	3,878
Meriwether	4,380	1,863	....	297	....	9,050
Mobley	5,000	3,954	....	919	....	5,800
Moss	2,288	1,946	....	477	....	2,723
Norris	4,805	1,571	10	827	....	7,563
Pickens	3,509	2,077	....	560	....	5,518
Pine Grove	5,687	4,216	....	817	....	3,627
Ryan	1,654	1,001	....	400	....	1,584
Shaw's	2,848	539	....	311	....	4,044
Talbert	2,079	2,083	....	427	....	2,863
Ward's	4,107	731	14	374	....	4,671
Washington	2,236	973	17	1,987	....	4,966
Wise	3,679	970	3	195	....	7,179
	70,890	41,773	59	13,925	....	94,403

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

FAIRFIELD COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
No. 1	4,065	1,521	4	514		6,147
No. 2	4,788	685	9	701		7,104
No. 3	4,721	832	23	408		7,861
No. 4	2,911	158		156		4,186
No. 5	2,168	306	1	80		4,912
No. 6	1,725	473	1	161	1	3,083
No. 7	1,020	381		104	1	3,044
No. 8	2,795	1,035		295	1	4,653
No. 9	2,831	1,563	4	381	1	6,059
No. 10	1,721	510		286		3,581
No. 11	1,723	410		146	1	4,378
No. 12	4,889	770	35	840		7,197
No. 13	3,884	1,135	3	515		9,135
No. 14	995	306		135		2,938
	40,236	10,085	80	4,722	5	74,278

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

GEORGETOWN COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Black River	1,444	31	......	......	1,198	122
Collins	1,191	......	......	......	100	166
Georgetown	662	70	......	......	3,080	2
Pee Dee	325	30	......	......	1,408	18
Sampit	685	45	......	......	2,597	36
Santee						
Waccamaw	222	75	......	......	2,654	16
	4,529	251	......	......	11,037	360

Area of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued.*

GREENVILLE COUNTY.

Townships.	Corn.	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Austin	3,966	1,428	16	1,025		5,054
Bates	5,459	1,156	35	1,106	18	1,885
Butler	2,879	836	5	568		3,968
Chick's Springs	3,881	768	59	928		2,732
Cleveland	2,733	7	20	94		65
Dunklin	3,813	834	1	960		4,659
Fairview	4,260	1,157	1	1,074		5,200
Gantt	3,076	594	10	742		3,000
Glassy Mountain	2,904	305	193	1,252		1,220
Greenville	2,515	321	12	611	1	2,175
Grove	3,672	1,192	10	1,190		4,800
Highland	3,281	262	15	1,260		2,426
Oaklawn	2,328	446	6	592		2,543
O'Neal	3,719	768	30	1,162		3,353
Paris Mountain	2,389	869	42	572	3	2,020
Saluda	4,906	411	141	583	1	800
	55,781	11,354	596	13,719	23	45,900

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

HAMPTON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Coosawhatchie	3,404	112	....	....	722	1,007
Goethe	7,575	2,000	62	15	665	7,202
Lawton	7,277	1,459	9	....	102	9,504
Peeples	9,038	3,150	33	12	375	4,928
Pocataligo	3,064	253	....	....	1,078	916
Robert	1,798	1,000	5	....	97	1,950
	32,156	7,974	109	27	3,039	25,507

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROAINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

HORRY COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Bayboro	1,333	10	......	......	191	94
Buck's	1,657	90	4	......	391	332
Conwayboro	1,347	20	......	......	207	82
Dog Bluff	1,438	60	......	......	136	204
Dogwood	1,016	......	......	......	21	11
Floyd's	2,949	10	......	......	110	720
Gallivant's Ferry	2,091	44	12	......	143	342
Green Sea	......	20	4	......	134	144
Little River	1,504	5	......	......	36	110
Simpson's Creek	1,743	10	......	......	229	68
Socastee	449	5	......	......	47	
	15,527	274	20	......	1,645	2,107

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

KERSHAW COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Buffalo	6,360	1,224	123	674	39	3,967
DeKalb	5,214	485	9	158	53	7,835
Flat Rock	6,723	1,086	23	491	....	8,820
Wateree	5,892	672	....	106	433	9,056
	24,18	3,467	155	1,429	525	29,678

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continue.*

LAURENS COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Cross Hill	4,752	3,458	7	1043	....	6,352
Dial	6,954	2,009	7	1201	....	6,729
Hunter	7,048	4,165	3	1,617	....	11,048
Jack's	4,825	2,210	1	1,003	....	7,221
Laurens	7,059	2,192	38	1,699	....	8,705
Scuffletown	3,309	1,611	....	847	....	5,162
Sullivan	4,537	1,834	....	1,364	....	4,614
Waterloo	5,900	3,065	2	2,004	....	10,383
Young's	3,409	1,492	....	1,201	1	4,886
	47,793	22,036	58	11,978	1	65,100

Areas of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued.*

LANCASTER COUNTY.

Townships.	Corn.	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Buford	3,887	1,041	....	952	....	2,484
Cane Creek	3,955	1,083	2	355	....	5,409
Cedar Creek	2,868	696	....	371	....	3,641
Flat Creek	5,191	895	....	644	....	4,940
Gill's Creek	4,504	940	18	507	....	3,570
Indian Land	2,562	1,021	1	486	....	3,248
Pleasant Hill	4,710	1,198	18	646	....	5,165
Waxhaw	2,696	520	....	189	....	4,268
	30,373	7,394	39	4,150	....	32,725

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

LEXINGTON COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Black Creek	2,736	24	4	844	40	606
Boiling Springs	2,426	91	7	965	17	161
Broad River	3,669	1,455	....	1,054	....	4,101
Bull Swamp	2,641	95	25	985	39	741
Chinquapin	3,040	439	....	895	5	1,438
Congaree	2,051	207	....	330	23	1,332
Fork	3,251	1,778	....	726	10	3,575
Gilbert Hollow	4,108	1,055	8	1,386	11	2,661
Hollow Creek	2,737	1,105	9	1,291	1	2,092
Lexington	4,051	2,603	....	2,366	23	2,297
Platt Springs	1,856	40	9	890	24	496
Saluda	3,198	1,908	....	1,149	4	2,310
Sandy Run	1,884	30	7	342	36	1,646
	37,648	10,830	69	13,223	233	23,456

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, by TOWNSHIPS.—*Continued.*

MARION COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Bethea	3,372	951	....	280	47	2,530
Britton's Neck	1,979	363	12	2	342	700
Cain's	3,864	1,571	31	5	268	2,421
Carmichael	4,151	573	48	101	31	3,436
Harlleeville	4,164	1,275	23	280	46	4,607
Hillsboro	5,214	506	4	50	84	2,918
Jeffreys	4,068	527	416	1	300	3,919
Kirby	3,440	840	41	55	88	2,805
LeGette	3,124	456	20	3	173	2,050
McMillan's	3,105	475	56	54	402	2,343
Manning	3,794	372	35	102	20	3,981
Marion	4,379	687	9	42	343	3,250
Moody	3,430	643	30	100	76	2,526
Pee Dee	3,040	311	....	....	253	1,694
Reeves	5,923	245	3	24	137	4,245
Rowell	1,854	180	37	1	135	1,079
Wahee	3,609	575	40	10	173	2,793
Woodbury	411	10	25	....	2	
	62,921	10,560	830	1,110	2,920	47,297

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

MARLBORO COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Adamsville	4,290	573	8	336	2	6,091
Bennettsville	3,048	541	....	64	2	6,598
Brightsville	3,636	216	33	481	1	3,460
Brownsville	3,422	289	29	352	58	3,327
Hebron	4,042	365	16	233	43	5,147
Red Bluff	4,609	784	32	369	6	5,471
Red Hill	4,188	1,230	46	242	15	5,727
Smithville	4,816	743	49	297	9	6,311
	32,051	4,741	213	2,374	136	42,132

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

NEWBERRY COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
No. 1. Newberry	1,877	1,285	2	757	....	5,077
No. 2. Caldwell	2,749	762	....	575	....	4,566
No. 3. Maybinton	3,777	645	6	306	....	4,260
No. 4. Cromer's	3,962	1,357	....	762	....	5,417
No. 5. Reeder's	3,737	1,311	....	807	....	5,380
No. 6. Floyd's	5,687	3,105	....	1,131	....	6,921
No. 7. Moon's	1,496	643	....	432	....	4,052
No. 8. Mendenhall	2,277	2,050	1	988	....	6,024
No. 9. Stony Battery	3,545	3,961	5	1,618	....	4,285
No. 10. Cannon's	1,969	1,560	....	1,064	....	5,653
No. 11. Heller's	4,478	1,376	....	1,036	....	7,108
	35,554	18,055	14	9,476	....	58,743

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

OCONEE COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Centre	5,325	2,201	55	1,787	....	4,925
Chatooga	1,367	124	215	53		
Keowee	3,842	482	200	317	2	1,642
Pulaski	1,113	47	211	64	....	42
Seneca	4,943	1,222	11	1,428	8	4,058
Tugaloo	2,919	835	15	474	....	1,555
Wagener	3,551	753	64	596	2	1,988
White Water	1,449	30	86	15	....	51
	24,509	5,694	857	4,734	12	14,261

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

ORANGEBURG.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Amelia	3,904	459	....	19	144	7,387
Branchville	2,173	772	20	26	422	1,155
Caw Caw	5,951	251	5	335	227	6,099
Cow Castle	2,315	630	....	1	361	764
Edisto	2,342	1,047	233	108	243	1,720
Elizabeth	4,635	155	22	548	194	3,632
Goodbys	3,794	736	2	7	492	3,182
Goodland	5,868	698	12	965	372	3,893
Hebron	2,449	168	21	347	44	1,328
Liberty	1,800	100	2	100	87	1,119
Lyons	3,729	675	....	10	190	5,980
Middle	4,097	970	4	40	1,107	2,472
New Hope	1,914	571	38	30	221	1,443
Orange	5,821	1,369	6	108	494	6,415
Pine Grove	3,175	382	1	55	50	3,886
Poplar	3,001	276	....	11	49	2,863
Providence	1,271	543	....	15	323	1,485
Union	2,369	873	14	93	314	2,232
Vance's	2,014	275	5	15	299	2,651
Willow	3,939	635	30	230	72	2,922
Zion	2,744	652	16	125	214	2,172
	69,305	12,237	431	3,188	5,919	64,800

Areas of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued*

PICKENS COUNTY.

Townships.	Corn.	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
No. 1. Easley	5,566	453	3	1,433	....	5,295
No. 2. Liberty	3,985	953	1	1,358	....	3,819
No. 3. Central	3,239	715	....	1,001	3	4,098
No. 4. Hurricane	3,066	394	45	465	....	1,840
No. 5. Pickens	4,904	429	14	684	....	3,350
No. 6. Dacusville	3,819	446	39	608	2	2,293
No. 7. Pumpkintown	1,866	30	11	172	22	281
No. 8. Eastatoe	2,840	105	110	227	....	515
	29,285	3,525	223	5,948	27	21,491

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1834, BY TOWNSHIPS.—*Continued.*

RICHLAND COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Centre	5,686	175	5	114	12	3,109
Columbia	2,600	777	....	80	212	2,464
Lower	10,474	773	....	19	8	19,901
Upper	4,281	1,322	....	274	1	2,736
	23,041	3,047	5	487	233	28,210

Areas of the Principal Crops of South Carolina, for the Year 1884, by Townships.—*Continued.*

SPARTANBURG COUNTY.

Townships.	Corn..	Oats.	Rye.	Wheat.	Rice.	Cotton.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Beech Springs	7,366	1,042	11	3,011	1	8,639
Campobello	5,645	866	22	1,742	....	4,351
Cherokee	4,409	1,105	....	1,248	....	4,318
Cross Anchor	3,708	1,411	2	1,268	....	4,752
Fair Forest	3,929	1,362	....	1,280	....	3,900
Glenn Springs	4,993	1,054	2	1,273	....	5,426
Limestone Springs	5,940	908	....	977	4	5,593
Pacolet	3,531	763	8	1,053	....	4,800
Reidsville	8,412	2,019	....	2,638	....	9,491
Spartanburg	5,291	1,060	2	1,084	....	5,840
White Plains	2,614	487	48	597	....	4,100
Woodruff	3,732	1,445	....	1,289	....	3,267
	59,570	13,522	95	17,460	5	64,477

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued*.

SUMTER COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Bishopville	2,793	636	26	101	33	4,900
Carter's Crossing	2,126	386	32	28	10	2,507
Concord	4,054	330	....	15	347	2,242
Lynchburg	3,791	641	15	28	297	4,070
Manchester	1,046	68	....	5	7	970
Mayesville	3,571	500	11	15	271	3,474
Middleton	1,551	501	1	20	16	2,781
Mount Clio	3,593	500	....	....	16	4,165
Privateer	3,815	411	24	159	40	3,556
Providence	2,862	312	....	4	60	4,500
Rafting Creek	3,036	277	....	9	4	5,366
Shiloh	3,876	523	1	35	383	2,916
Spring Hill	3,403	246	....	36	35	3,715
Stateburg	3,551	375	....	....	8	4,358
Sumter	2,006	246	1	10	165	2,728
Swimming Pens	3,509	357	....	....	91	4,800
	48,583	6,309	111	465	1,783	57,048

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

UNION COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Bogansville	6,454	1,541	10	1,265	....	7,400
Cross Keys	3,424	1,488	....	625	....	3,422
Draytonville	3,877	500	15	958	....	4,552
Fish Dam	2,290	355	....	169	....	4,022
Goshen Hill	2,659	528	1	281	....	3,639
Gowdeysville	4,714	698	9	1,469	....	6,828
Jonesville	3,947	499	3	1,038	....	6.862
Pinckney	5,264	1,533	....	2,300	....	7,125
Santuc	4,561	622	....	502	....	6,210
Union	3,353	765	4	495	....	4,878
	40.543	8,529	42	9,097	....	54,938

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

WILLIAMSBURG COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Anderson	1,122	5	....	....	103	200
Hope	2,990	192	....	....	353	2,300
Indian	3,886	181	2	....	346	2,444
Johnson	1,791	201	....	1	155	812
King's	3,524	99	....	1	457	1,900
Lake	2,275	103	5	7	328	720
Law's	1,237	35	....	....	105	841
Lee's	2,580	196	3	20	329	1,000
Mingo	1,819	15	....	....	186	625
Penn	1,726	25	....	....	202	940
Ridge	2,145	301	14	15	284	1,792
Sumter	3,446	422	6	18	366	1,729
Sutton's	882	....	....	....	113	505
Turkey	1,895	187	3	9	169	1,246
	31,318	1,962	33	71	3,496	17,058

AREAS OF THE PRINCIPAL CROPS OF SOUTH CAROLINA, FOR THE YEAR 1884, BY TOWNSHIPS.—*Continued.*

YORK COUNTY.

TOWNSHIPS.	CORN.	OATS.	RYE.	WHEAT.	RICE.	COTTON.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Bethel	5,217	2,292	....	2,235	....	4,989
Bethesda	4,907	2,608	....	1,762	....	7,120
Broad River	4,712	1,157	12	1,746	....	3,556
Bullock Creek	6,675	1,653	4	1,504	....	6,167
Catawba	6,890	5,621	357	1,761	....	10,909
Cherokee	4,354	798	2	2,273	....	2,366
Ebenezer	6,596	3,000	....	3,224	....	9,091
Fort Mill	4,645	924	1	1,428	....	7,711
King's Mountain	5,082	790	....	825	....	3,964
York	5,742	1,878	21	2,101	....	5,621
	54,820	20,721	397	18,859	....	61,492

CONCLUSION.

I desire to return to your Excellency and to each member of the Board my thanks for courtesies extended me and assistance rendered in the discharge of my duties. I have endeavored to faithfully execute the directions of the Board, and to so work that, by their advice and co-operation, something might be done for the advancement of the Agricultural interests of the State and the development of the resources of South Carolina.

The correspondents of the Department have labored faithfully to the same end, and they manifest great interest in the important work committed to the Department of Agriculture, and I desire to make this public acknowledgment of their valuable services.

I have the honor to be,
Your Excellency's obedient servant,
A. P. BUTLER,
Commissioner of Agriculture.

FINANCIAL STATEMENT.

Report of collections and disbursements by A. P. Butler, Commissioner of Agriculture, on account of the Department of Agriculture, from November 1, 1883, to October 31, 1884.

COLLECTIONS.

*Collected and paid State Treasurer Privilege Tax...............	$25,262 16		
*Collected and paid State Treasurer sale of maps.................	6 00		
Cash in State Treasury, November 1, 1883	3,302 31		
			$28,570 50

DISBURSEMENTS.

Phosphate Department..............			$3,811 79	
Salary Special Assistant, 11 months at $150..........................		$ 1,650 00		
Traveling Expenses, office rent and postage.......		339 60		
Expense litigation, Phosphate Suits		1,822 19		
Fish Commission.........			$1,078 95	
Salary Superintendent, 7 months at $66.66............................$		466 62		
Transportation Expenses......		69 75		
Improvements.............................		67 39		
Assistance..................................		240 14		
Subsistence.........		193 03		
Sundries.....................................		254 09		
Guard and Work at fish ponds.....		12 75		
Telegrams.....................................		1 48		
Attorneys' Fees examining title...		5 00		
		$1,310 25		
Deduct amount received from sale of buckets.....	$209 40			
uct amount overpaid erintendent......	21 90	231 30		
		$1,078 95		
ied forward.....			$4,890 74	$28,570 00

ments in Report furnished Comptroller General.

Amounts brought forward..			$4,890 74	$28,570 00
Agricultural Department..........			$23,656 88	
Salary Commissioner of Agriculture, 12 months at $175..........$		2,100 00		
Salary Clerk, 12 months at $125..		1,500 00		
Salary Chemist, 11 " " $175..		1,925 00		
Laboratory Expenses..............		2,535 25		
Repairs on building.........		5,905 56		
Hand Book..........................		4,325 50		
Printing............................		278 42		
Publishing Monthly Reports......		271 40		
Janitor.............................		92 70		
Clerical Assistance................		400 00		
Freight and Hauling...............		233 09		
Telegrams.........		96 90		
Express Charges.....................		47 42		
Expenses drawing Guano Samples		219 95		
Privilege Tax Tags..................		1,023 91		
Postage		268 55		
Plumbing and Gas Fitting.........		428 97		
Publishing Pamphlets.............		300 00		
Office Fixtures........................		310 25		
Books and Stationery..............		109 50		
Insurance		345 00		
Interest on balance due on building		630 00		
Per diem and mileage Board of Agriculture		89 40		
Porter........................		75 00		
Rent of Telephone..................		57 00		
Fuel...........................		22 75		
Digging Dry Well....................		21 80		
Decorating Hall.........		25 00		
Recording Deed......................		2 00		
Ice		2 00		
Sundries		7 45		
Sample Hay Crate....		4 25		
Overpaid by Clerk, October 31, 1883.	$14 61			
Deduct amount received for lumber.........................	5 75	8 86		
Balance in State Treasury, October 31, 1884				

SIXTH ANNUAL REPORT

OF THE

COMMISSIONER OF AGRICULTURE

OF

SOUTH CAROLINA,

FOR THE

FISCAL YEAR ENDING OCTOBER 31, 1885.

COLUMBIA, S. C.
CHARLES A. CALVO, JR., STATE PRINTER.
1885.

REPORT.

OFFICE OF COMMISSIONER OF AGRICULTURE,
COLUMBIA, S, C., October 31, 1885.

TO GOVERNOR HUGH S. THOMPSON, *Chairman of the Board of Agriculture.*

SIR: I have the honor to submit the Sixth Annual Report of the Department of Agriculture for the year 1885, including the reports of the Commissioner of Agriculture, the Chemist of the Department, the Special Assistant in the Phosphate Department, and Superintendent of Fisheries.

The amount received from the tax on commercial fertilizers from November 1, 1884, to November 1, 1885, appears in Financial Report at close of this Report.

This sum has been paid into the State Treasury for the use and benefit of the Department of Agriculture. An itemized statement showing receipts and disbursements has been furnished the Comptroller General, and financial statement, showing aggregate receipts and purposes for which disbursements have been made, is published with this Report.

The laws in this State regulating the sale of commercial fertilizers are more generally approved, as far as our observation goes, by dealers and consumers than those in any other State, and with some amendments they would give that full protection to honest dealers and consumers that they are designed to afford.

All manufacturers are required to brand on each package of their fertilizers the real percentage of ammonia, available phosphoric acid and potash, and if the analysis of the Chemist of the Department of Agriculture shows that they are deficient in any of these ingredients the goods are liable to seizure and condemnation, and, when condemned, sold by the Board of Agriculture, &c. It is impracticable to enforce this penalty. The samples drawn for analysis are taken in the country after the goods have passed out of the hands of manufacturers, and the analyses are not completed until after the goods are sold. The detection, therefore, comes too late and prevents the Department from applying the penalty. The only course that can then be pursued is to publish the results of the analyses, calling attention specifically to those brands of fertilizers that are deficient. In this way the information is furnished consumers to guide them in their purchases the next season, and where they do not obtain satisfactory results from the use of the fertilizers and desire to refuse payment for them, they can use these analyses as proof of the inferiority of the fertilizers, as they are always completed and published before the fertilizer notes are due by farmers.

This defect in the law is called to the attention of the Legislature, so that if that body, in its wisdom, shall deem best to amend the law, it will have the facts before it. In this connection special attention is called to the report of the Chemist relating to deficient samples.

It has not been found necessary to make any changes in the regulations governing the sales of fertilizers for the past two seasons. The rules prescribed by the Board and Commissioner are now thoroughly understood by dealers and no objection is urged against them. These rules for season 1883–84 and 1884–85 were as follows:

1. All persons or companies engaged in the manufacture or sale of commercial manures and required to pay to the Commissioner of Agriculture twenty-five cents per ton on every ton of such commercial fertilizer sold or offered for sale in South Carolina.

2. Every bag, barrel or other package of such fertilizers or commercial manures shall have thereon a plainly printed label or stamp, which shall truly set forth the name, location and trade mark of the manufacturer; also the chemical composition of the contents of such package and the real percentage of any of the following ingredients asserted to be present, to wit: Soluble and precipitated phosphoric acid, soluble potassa, ammonia or its equivalent in nitrogen, together with the *date of its analysis*, and that the privilege tax has been paid.

3. All chemical compounds sold or offered for sale, including burnt marl, kainit, ground bone, fish scrap and Peruvian guanos, are subject to the payment of the privilege tax.

4. Only the privilege tax tags issued by this Department are recognized as evidence of the payment of the tax.

5. Applications for tags should be made to the Commissioner of Agriculture, accompanied by the amount of tax and the name of the manufacturer of the fertilizer, where manufactured, the brand of the fertilizer for which they are to be used and the guaranteed composition of the same, together with the number of bags, barrels or packages to the ton. (If the fertilizer for which tags are desired has been imported, the name and location of the importer must be given.) Manufacturers and dealers are prohibited from using the tax tags on any brand of fertilizer unless this rule, as well as all others regulating sales, has been strictly complied with.

6. *The practice permitted during the season of* 1882-83 *of branding on the packages both a minimum percentage and a maximum percentage (not more than twenty-five per cent. (25 per cent.) greater than the minimum) will not be allowed hereafter. Any goods not coming up to the guarantee on the bags are liable to seizure and condemnation, manufacturers and dealers are warned that no allowances will be made for differences in analytical results. It is not allowed to brand on the packages the words "and more," or other words of the same report, after the guaranteed percentages. The analysis branded on the package must correspond with the guaranteed analysis filed in the Commissioner's office. [See below Section* 13.] *No tags will be furnished companies or dealers violating any of the above provisions.*

7. All railroad companies and other common carriers are prohibited from *delivering* any commercial fertilizer that does not bear the prescribed tag, showing that the tax has been paid. This does not apply to the delivery by railroads to their *connections*, but to its delivery at points of final destination to guano agents or other consignees.

8. The samples of fertilizers to be analyzed by the Chemist of this Department will be drawn by an agent appointed by the Department from any lot sold or offered for sale and at any point in the State.

9. The tags furnished by the Department are simply evidence that the *tax has been paid*, and manufacturers and dealers are prohibited from printing the brand of fertilizer, analysis or any other matter on them.

10. Any merchant, trader, manufacturer, agent or person who shall sell or offer for sale, or deliver after sale, or *receive*, any commercial fertilizer without having the labels and stamps prescribed by law, shall be liable to a fine of ten dollars for each separate bag, barrel or other package sold or offered for sale, to be sued for before any Trial Justice.

11. All persons are warned against purchasing or receiving fertilizers or commercial manures that do not bear the privilege tax tag of this Department and the other labels and stamps provided by law.

12. Manufacturers and dealers are requested to send the guaranteed analyses, etc., to be filed in this office, on a separate sheet of paper from their letters of applications for tags, *and certified to by the manufacturer*, as follows:

13. FORM 1.

...., 188.........

...., *Commissioner of Agriculture, Columbia, S. C.*

Dear Sir: Below please find guaranteed analyses of our brands of fertilizers which we propose to sell in South Carolina during the season of 1883-84. We certify that the *name, location* and *trade mark* of the *manufacturer*, also the chemical composition of the contents of each package of Fertilizer, and the *real percentage* of Soluble and Precipitated Phosphoric Acid, Soluble Potassa and Ammonia, is branded on each and every package of the same, in accordance with Section 596, General Statutes South Carolina, and that the guaranteed analyses given herewith are exact transcripts from the packages.

Respectfully,

....

Brand of Fertilizers.	By Whom Manufactured.	Where Manufactured.	GUARANTEED ANALYSIS.		
			Soluble and Precipitated Phosphoric Acid.	Soluble Potassa.	Ammonia.

Manufacturers, dealers, agents and other applicants for Privilege Tax Tags are requested to note that no tags will be furnished for use on any brand of fertilizer until the above form, properly filled out, has been filed in the office of the Commissioner of Agriculture at Columbia, S. C. Blank forms can be procured from this office.

14. Privilege tax tags cannot be used upon any other brand of fertilizer than that for which they were purchased. Where parties are handling a number of brands the guaranteed analysis, etc., of all the brands can be filed at the same time, and tags purchased at the time or subsequently during the season can be used on either of those brands, but it is a violation of the Regulations to use these tags on any brand until Rule 5 has been fully complied with.

A list of fertilizers, acid phosphates, kainit, chemicals, &c., admittted to to sale in the State for season 1884–85 will be found in this Report, Table 2.

The Commissioner has endeavored each season to obtain samples of all fertilizers offered for sale in the State, but every brand cannot always be sampled, as some of them are only sold in small lots and are used as soon as received by the farmers. Samples could be drawn at the company's works, and in this way every brand would be analyzed, but such analysis would not satisfy the consumer of the quality of the goods, and really might not truly represent the character of the fertilizers, as it would be in the power of the manufacturers to adulterate them after the samples had been drawn, and before they were shipped to the farmers.

The plan of drawing samples in the country was therefore adopted as the most satisfactory to all parties concerned, and has been pursued every season. While under this system some few brands may escape inspection, as already explained, it has not been deemed of sufficient importance to make any changes in the manner of drawing samples to meet these isolated cases.

The Sampler for the Department was sent out in January and continued his work until July. He was instructed to procure samples of all fertilizers offered for sale at every point visited, and to report all violations of the law that he might detect. He drew 229 samples and visited the following places: Newberry, Ninety-Six, Greenville, Anderson, Seneca City, Spartanburg, Union, Yorkville, Chester, Rock Hill, Winnsboro, Camden, Wedgefield, Manning, Sumter, Mayesville, Timmonsville, Darlington, Bennettsville, Cheraw, Marion, Columbia, Batesburg, Johnston, Trenton, Allendale, Hampton, Orangeburg, Bamberg and Scranton. These samples were delivered to the Chemist and analyzed, except where there were duplicates of the same brand and the first analysis rendered a repetition unnecessary. These analyses will be found in the Chemist's report.

In view of the fact already stated, that the penalty prescribed for deficiency in ingredients cannot be enforced, it has been deemed best to print in italics all brands deficient in any essential ingredients. The manufacturer's guarantee is also published with our analyses, and a comparison will show the amount of the deficiency where such occurs.

The Department Sampler reported some violations of the law, but as these were referred to the Attorney-General and he advised against suit, they are not considered of sufficient importance to bring to the attention of the Legislature.

The Department has advertised that it will make analyses of fertilizers, minerals and waters, for farmers and other citizens of the State, when requested to do so, without cost to the parties sending the specimens. Several parties have availed themselves of this offer of the Department, and the analyses have been made as requested by them.

The value of official analyses of fertilizers in protecting consumers, and in advancing the interest of honest manufacturers, is now universally recognized.

The result of the official control of commercial manures is clearly shown in the following extract from a communication published in Bradstreet's, referring to the agriculture of North Carolina:

"The establishment of the State Department of Agriculture in 1877 did much to encourage and to extend the use of commercial fertilizers. Previous to this, confidence was being lost in the value of the fertilizers put upon the market, and the sales diminished to less than 40,000 tons. But since their composition and sale have been made subjects of State supervision, the annual sale has steadily increased to 100,000 tons at present, and, at the same time, the price has decreased and the quality has improved."

REPORT OF STATE CHEMIST.

OFFICE OF STATE CHEMIST,
COLUMBIA, S. C., 31 October, 1885.

Hon. A. P. BUTLER, *Commissioner.*

DEAR SIR: I have the honor to submit the following report of the work performed in this laboratory during the past season of 1884–85.

The total number of analyses made was two hundred and two, classified as follows:

Official samples	161
Fertilizers sent in by farmers	8
Compost	1
Waters	9
Japanese Dried Fish	2
Pea Meal	1
Samples sent out by Association of Official Chemists	20
Total	202

The analysis of these samples involved the following number of determinations of Phosphoric Acid, Nitrogen and Potash, besides determinations of other ingredients.

Of Phosphoric Acid	692
Of Nitrogen	141
Of Potash	173
Total	1,006

This amounted to an increase over the preceding year of forty-six analyses and one hundred and eighteen determinations.

Official Samples.

As usual, the chief work of the laboratory was the analysis of the official samples of fertilizers offered for sale in the State, drawn by the regular Inspector of the Department. The work in this department was commenced towards the end of January and finished on the 24th of July. An accident to myself, caused by the breaking of some apparatus, having occasioned some delay in the progress of this work, I was authorized by the Board of Agriculture to employ a temporary assistant. Through the courtesy of Prof. C. U. Shepard, Jr., of Charleston, I was enabled to procure for a month the services of his assistant, Mr. William Robertson, who rendered me valuable aid during his stay. The official samples analyzed were as follows:

Of Acid Phosphates	16
Of Acid Phosphates with Potash	24
Of Ammoniated Acid Phosphates	1
Of Complete Fertilizers	91
Of Kainit	20
Of Cotton Seed Meal	3
Of Ash Element	2
Miscellaneous	4
Total	161

The detailed analyses, together with the names of the brands, commercial values, manufacturers' guarantees, &c., will be found in the tables appended hereto.

Deficient Samples.

The number of samples deficient, that is, falling below the manufacturers' guarantees in *one or more constituents*, is so large that I feel it to be my duty to call your especial attention to the matter.

Of the ninety-three ammoniated fertilizers analyzed, thirty-seven, or 39¾ per cent. of the whole number, were deficient.

Of the forty acid phosphates, eight, or 20 per cent., were deficient. This proportion is so large as to merit your serious consideration. In these estimates are included all samples deficient in any respect, whether the deficiency be great or insignificant.

Averages of the Analyses.

The averages of the various classes of official samples are given below, and to these are added, for the sake of comparison, the averages obtained during the preceding season of 1883–84, and those of the three seasons of 1881 to 1884.

It will be seen from these tables of comparison, that there is no appreciable difference between the average standards of this season and that preceding it. While there has been a slight falling off in the average amount of ammonia in the complete fertilizers, the loss has been balanced by the gain in phosphoric acid and potash. A comparison of the respective commercial valuations, calculated according to the rate of the present season, will show this, these values for the present season and that of 1883–1884 being respectively $21.47 and $21.50.

As only one sample of the class "Ammoniated Acid Phosphate" was examined this season, no comparison or average is given for this class.

It will also be observed that there has been a steady diminution in commercial values, due to reductions in the cost of fertilizer ingredients.

Acid Phosphates.

	SEASON 1884–85	SEASON 1883–84	3 SEASONS 1881 to 84
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	9.50	8.59	8.48
Reduced Phosphoric Acid	3.12	4.06	3.34
Available Phosphoric Acid	12.62	12.65	11.82
Insoluble Phosphoric Acid	2.46	2.20	2.46
Total Phosphoric Acid	15.08	14.85	14.28
Relative commercial value per 2,000 lbs.	$16.41	$18 98	$22.89

Acid Phosphates with Potash.

	SEASON 1884–85	SEASON 1883–84	3 SEASONS 1881 to 84
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	8.27	7.24	7.21
Reduced Phosphoric Acid	2.52	3.53	3.29
Available Phosphoric Acid	10.79	10.77	10.50
Insoluble Phosphoric Acid	2.27	2.22	2.43
Total Phosphoric Acid	13.06	12.99	12.93
Potash	2.21	1.94	1.70
Relative commercial value per 2,000 lbs.	$16.24	$18.49	$ 22.41

Complete Fertilizers.

	SEASON 1884–85	SEASON 1883–84	3 SEASONS 1881 to 84
	P. C.	P. C.	P. C.
Soluble Phosphoric Acid	6.51	6.06	5.95
Reduced Phosphoric Acid	2.54	2.91	2.72
Available Phosphoric Acid	9.05	8.97	8.67
Insoluble Phosphoric Acid	2.20	2.34	2.48
Total Phosphoric Acid	11.25	11.31	11.15
Ammonia	2.57	2.77	2.77
Potash	1.99	1.53	1.60
Relative commercial value per 2,000 lbs.	$21.47	$24.16	$30.68

Kainits.

	Season 1884–85.	Season 1883–84.	3 Seasons 1881 to 84
	P. C.	P. C.	P. C.
Potash	13.39	13.40	13.55
Relative Commercial value per 2,000 lbs.	$13.39	$16.08	$16.26

Cotton Seed Meal.

	Season 1884–85.
	P. C.
Phosphoric Acid	2.43
Potash	1.62
Ammonia	8.29

It may be well to state that the determinations of phosphoric acid during the past season were made by the method of the Association of Official Agricultural Chemists, while in the preceding years the gravimetric Uranium method was employed.

AVERAGES OF MANUFACTURERS' GUARANTEES.

Season 1884–85.

ACID PHOSPHATES.

	P. C.
Available Phosphoric Acid	11.41
Relative commercial value per 2,000 pounds	$14.83

ACID PHOSPHATES WITH POTASH.

	P. C.
Available Phosphoric Acid	9 90
Potash	1.82
Commercial value	$14.69

COMPLETE FERTILIZERS.

	P. C.
Available Phosphoric Acid	8.40
Ammonia	2.18
Potash	1.51
Commercial value	$18.97

KAINITS.

	P. C.
Potash	12.12
Commercial value	$12.12

AVERAGES OF MANUFACTURERS' GUARANTEES.

Season 1883–84.

ACID PHOSPHATES.

	P. C.
Available Phosphoric Acid	12.48
Commercial value per 2,000 pounds	$18.72

ACID PHOSPHATES WITH POTASH.

	P. C.
Available Phosphoric Acid	9.44
Potash	1.64
Commercial value per 2,000 pounds	$16.13

COMPLETE FERTILIZERS.

	P. C.
Available Phosphoric Acid	7.46
Ammonia	2.08
Potash	1.31
Commercial value per 2,000 pounds	$19.42

KAINITS.

	P. C.
Potash	12.17
Commercial value per 2,000 pounds	$14.60

The average *guarantee* on acid phosphates was lower for the present season than for 1883–84, but the guarantees on the acid phosphates with potash and complete fertilizers, which constitute over 70 per cent. of all the brands examined, are appreciably higher. All the average guarantees are below the average results obtained.

Relative Commercial Valuation.

The rates of valuation used during the past season were for

	Per lb.	Per Unit.
Available Phosphoric Acid	6½ cts.	$1 30
Ammonia	15 "	3 00
Potash	5 "	1 00

These rates were based, as usual, on the *cash values* of the single ton free on board at Charleston.

The rates for the next season have not been fixed as yet, but will be published later. An attempt to bring about the adoption of uniform rates of valuation for use in the States of South Carolina, Georgia and North Carolina is the cause of the delay. Notice will be given through the Monthly Reports of the Department of the rates to be used.

Farmers' Samples.

In response to the notice published in last year's Report, ten samples were sent in for analysis—eight samples of fertilizers, one compost and one sample of pea meal. The analyses of these fertilizer samples may be found in Table 4. See page 32.

Japanese Dried Fish.

The two samples examined were received through Mr. L. A. Ransom, then representing the Department at the New Orleans Exposition, from Mr. Jokichi Takamine, the Japanese Commissioner to the Exposition. Mr. Takamine was investigating the possibility of establishing a direct trade between Charleston and Japan, his idea being to export phosphate rock from Charleston to Japan, to be there used in the manufacture of fertilizers, and to send in return cargoes of dried fish for ammoniating purposes. After the close of the Exposition he visited Charleston, where he inspected carefully the various phosphate deposits and phosphate and fertilizer works, and also examined into the commercial aspects of the question. While Mr. Takamine expressed himself as highly pleased with the results of his visit, he did not express any definite conclusions as to the feasibility of his plans.

The examination of the samples submitted for analysis gave the following results:

Analyses 193 *and* 194.

	Moisture.	Nitrogen.	Equivalent to Ammonia.
	P. C.	P. C.	P. C.
Fish Scrap No. 1	8.07	9.47	11.50
Fish Scrap No. 2	9.65	11.88	14.41

No 1 was in small pieces, No. 2 in large pieces.

These results are remarkably good, 11 per cent. of ammonia being a high average for fish. The result obtained in No. 2, which is exceptionally high, was the mean of two determinations agreeing very closely.

Association of Official Agricultural Chemists.

This Association, which was formed at Philadelphia in September, 1884, is composed of "analytical chemists connected with Departments of Agriculture, State Agricultural Experiment Stations, and State Boards exercising an official fertilizer control." At that meeting the Association adopted methods for the determination of phosphoric acid and potash in fertilizers, and appointed Committees to prepare and distribute samples to test the accuracy of these methods, and the uniformity of the results obtained by their use by different analysts. They also appointed a Committee to prepare similar samples for nitrogen tests, with the view of adopting a method of nitrogen determination. For these Committees twenty samples were examined, as follows: For the Phosphoric Acid Committee two samples, for the Potash Committee six samples, and for the Nitrogen Committee twelve samples.

These Committees made their reports to the Association at its second annual meeting, which was held in Washington on September 1st last, and which I attended as the representative of this Department. The methods of phosphoric acid and potash determination used during the past season were adopted with some modifications. It was deemed inexpedient to adopt any method of nitrogen determination. The results already obtained by the formation of this Association in bringing about a greater degree of accuracy and agreement in analysis have been particularly gratifying, and afford every reason for belief that the Association will in the future prove a valuable and almost indispensable guide in the analytical control of fertilizers.

Methods of Analysis.

In determining Phosphoric Acid and Potash during the next season of 1885–86, the methods used will be those of the Association of Official Chemists, the methods of the past season, with the modifications adopted at the recent meeting in Washington. As the report of this meeting has not yet been issued, I am unable to give the detailed methods. I would, however, call the especial attention of manufacturers to the fact that it has been found necessary to omit the addition of acids as a solvent in the potash method, and that consequently only potash that is soluble in water will be shown by this method. As no method of determining nitrogen has yet been adopted by the Association, the copper oxide method will be used, as in previous seasons. The report of the Association giving the phosphoric acid and potash methods adopted may be obtained, when issued, by applying to Mr. Clifford Richardson, Secretary Association Official Agricultural Chemists, care of the Department of Agriculture, Washington, D. C.

Joint Meeting at Bennettsville.

By invitation, I attended the Joint Summer Meeting of the State Agricultural Society and State Grange, held at Bennettsville on the 5th of August last, and read an address on the subject, "The Fertilizers Best Suited to Agricultural Products on the Different Soils of our State."

Financial Statement.

I enclose herewith a statement of my receipts and expenditures during the past year, and also an estimate of the value of the apparatus, chemicals, books, &c., now on hand.

I have the honor to be, very respectfully,

PHILIP E. CHAZAL, E. M.,
State Chemist.

FERTILIZER ANALYSES FOR FARMERS.

Analyses of samples of fertilizers will be made for farmers after the completion of the regular official analyses. Particular attention is called to the following

DIRECTIONS FOR SAMPLING.

Draw a sample from each sack, taking portions from the top, centre and bottom of the sack, if possible. *Mix thoroughly.* Place about a quart in a glass bottle with a large mouth. Cork and *seal tightly.*

Pack securely in a box and forward by express, *prepaid,* to this office.

Send to this office an abstract of the brand on the bag, giving full guaranteed analysis, name of article and name and address of manufacturer or dealer. Blanks for this purpose can be obtained from this office.

No analyses will be made unless these regulations are strictly complied with.

The Department reserves to itself the right to publish the analysis of any article sent to its laboratory for examination.

No charge is made for the analysis.

ANALYSES OF WATER.

Persons desiring to have samples of water examined will please observe the following directions for sampling:

Take a new two or three gallon demijohn; clean thoroughly, *rinsing finally with some of the water to be examined.* Fill the demijohn nearly full; close with a new and clean cork and seal tightly. If a demijohn cannot be obtained, use large glass bottles, which may be obtained from any druggist. Observe the same directions as to cleaning. Pack securely.

Mark with the name and address of sender and forward by express, *prepaid,* to this office

ANALYSES AND COMMERCIAL VALUES

OF

COMMERCIAL FERTILIZERS AND CHEMICALS

WITH

MANUFACTURERS' MINIMUM GUARANTEES.

Season 1884-85.

In the following tables there are given the numbers of the samples, the names of the brands (alphabetically arranged), the analyses of the Chemist of the Department, with the calculated commercial values. Immediately alongside, for the purposes of comparison, are given the manufacturers' guarantees, with their calculated commercial values.

On the opposite pages are given the numbers and names of brands, with places and dates of sampling, and names and locations of manufacturers.

In Table 4 will be found analyses of samples sent in by farmers. The Department does not guarantee the authenticity of these samples.

In all cases where the analysis is below the guarantee in any constituent, the name of the brand and the amount of the constituent are printed in italics.

RATES OF COMMERCIAL VALUATION SEASON 1884-85.

	PER LB.	PER UNIT.
Available Phosphoric Acid	6½ cents.	$1 30
Ammonia	15 "	3 00
Potash	5 "	1 00

All of these rates are based on the cash values of the single ton at Charleston, and do not include the cost of transportation.

Tables of Analyses and Relative Commercial Values, Season of 1884–85, *with Manufacturers' Minimum Guarantees.*

TABLE I.—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

Sample Number.	BRAND OF FERTILIZER.	Moisture.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K_2O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C	P. C.		P. C.	P. C.	P. C.		
195	Accabee Fertilizer	11 90	11.33	2.27	6.27	2.79	9.06	2.38	2.89	2.07	$22 52	8.00	2.00	1.00	$17 40	195
213	*Alkaline Guano*	13.20	12 74	2.88	7.30	2.56	*9.86*	1.96	2.38	1.54	21 50	*10.00*	2.00	1.50	20 50	213
17	Americus Ammoniated Bone	13.43	9.24	0.80	6.02	2.42	8.44	2.01	2.44	1.81	20 10	8.00	2.00	1.50	17 90	17
26	Arlington Ammoniated Soluble Phosphate	10,05	13.24	2.35	7.68	3.21	10.89	2.08	2.53	2.51	24 26	9.00	2.50	2.00	21 20	26
192	Ashepoo Dissolved Bone with Ammonia and Potash	13.65	13.70	3.52	7.30	2.88	10.18	1.02	1.24	1.54	18 49	10.00	1.00	1.00	17 00	192
162	Ashley Ammoniated Dissolved Bone	16.60	11.20	0 99	3.33	6.88	10.21	1.46	1.77	2.05	20 63	10.00	1.50	2.00	19 50	162
203	*Ashley Cotton and Corn Compound*	12 20	7.81	1.07	4.74	2.00	6.74	2 68	3.25	*2.00*	21 41	6.00	3.25	*3.00*	20 55	203
163	*Ashley Soluble Guano*	14.65	9.92	0.80	6.78	2 34	9.12	1.89	*2.29*	2.92	21 65	8.00	*2.50*	1.50	19 40	163
129	Atlantic Ammoniated Acid Phosphate	14.20	11.90	0.74	8.06	3.10	11.16	1.38	1.68	2.11	21 66	10.00	1.50	1.00	18 50	129
143	Atlantic Fertilizer	12.95	10.56	0.61	7.55	2.40	9.95	2.15	2.61	2.69	23 46	8.00	2.50	2.00	19 90	143
22	Bahama Soluble Guano	12.20	12.30	2.30	6.14	3.86	10.00	2.73	3.32	2.47	25 33	10.00	2.75	2.25	23 50	22
218	Bald Eagle	12.73	12.64	4.13	6.27	2.24	8.51	1.67	2.03	1.47	18 62	8.00	2.00	1.00	17 40	218
107	Baltimore Crown Guano	13.45	11.33	3.28	5.25	2.80	8.05	1.71	2.08	2.16	18 47	8.00	2.00	2.16	18 56	107
37	*Brown Bros. Standard Ammoniated Fertilizer*	17.05	11.14	2.59	6.53	2 02	*8.55*	1.82	2.21	0 97	18 72	*8.71*	2.00	0.58	17 90	37
105	Buffalo Bone Guano	12.60	11.33	2.08	7.30	1.95	9.25	2.57	3.12	2.59	23 98	8.00	2.00	2.00	18 40	105
165	Carolina Fertilizer	11.35	11.58	1.89	7.30	2.39	9.69	1.95	2.37	1.50	21 21	8.00	2.00	1.00	17 40	165
113	Catawba Fertilizer	10.45	12.16	2.88	7.42	1.86	9.28	1.86	2.26	1.86	20 70	8.50	2.00	1.50	18 55	113
23	*Colgate Manure.* (Canton's)	10.95	12.44	3.58	6.66	2.20	8.86	1.62	*1.97*	3.30	20 73	8.00	*2.00*	2.00	18 40	23
120	Cotton Food	12 55	12.10	2.50	6.02	3.58	9.60	2.19	2.66	2.05	22 51	8.00	2.00	1.35	17 75	120
178	Cotton Grower	15.70	10.11	1.12	7.68	1.31	8.99	2.02	2 45	1.47	20 51	8.00	2.00	1.35	17 75	178
217	Cranston's Ammoniated Dissolved Bone	19.05	10.56	1.98	6.53	2.05	8.58	2.25	2.73	1.16	20 50	8.00	2.00	1.00	17 40	217
44	Crayton & Son's Ammoniated Fertilizer	14.13	11.97	2.26	7.43	2.28	9.71	2.21	2.68	2.59	23 25	9.00	2.50	1.50	20 70	44
68	*Crescent Bone Fertilizer*	14.30	10.94	2.80	4.99	3.15	*8.14*	2.15	*2.61*	*2.28*	20 69	*9.75*	*2.75*	*2.75*	23 68	68
123	*Domestic Ammoniated Fertilizer*	13.55	11.94	1.79	8.58	1.57	10.15	1.85	*2.25*	*2.14*	22 09	8.00	*2.50*	*3.00*	20 90	123
77	Duncan's Ammoniated Compound	9.95	9.02	1.41	6.27	1.34	7.61	2.13	2.58	3.64	21 27	7.00	2.00	3.00	18 10	77

Tables of Analyses and Relative Commercial Values, Season of 1884–85, with Manufacturers' Minimum Guarantees.

TABLE I.—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
195	November 13	Marion	Accabee Fertilizer	Ashepoo Phosphate Co	Charleston, S. C	195
213	*November 27*	*Batesburg*	*Alkaline Guano*			213
17	January 22	Greenville	Americus Ammoniated Bone	Williams, Clark & Co	New York	17
26	January 30	Greenville	Arlington Ammoniated Soluble Phosphate	Dambmann Bros. & Co	Baltimore, Md	26
192	March 12	Marion	Ashepoo Dissolved Bone with Ammonia and Potash	Ashepoo Phosphate Co	Charleston, S. C	192
162	February 23	Sumter	Ashley Ammoniated Dissolved Bone	Ashley Phosphate Co	Charleston, S. C	162
203	*March 20*	*Columbia*	*Ashley Cotton and Corn Compound*	*Ashley Phosphate Co*	*Charleston, S. C*	203
163	*February 23*	*Sumter*	*Ashley Soluble Guano*	*Ashley Phosphate Co*	*Charleston, S. C*	163
129	February 13	Rock Hill	Atlantic Ammoniated Acid Phosphate	Atlantic Phosphate Co	Charleston, S. C	129
143	February 19	Camden	Atlantic Fertilizer	Atlantic Phosphate Co	Charleston, S. C	143
22	January 23	Greenville	Bahama Soluble Guano	Walton, Whann & Co	Wilmington, Del	22
218	March 28	Trenton	Bald Eagle	Georgia Chemical Works	Augusta, Ga	218
107	February 12	Chester	Baltimore Crown Guano	Chesapeake Guano Co	Baltimore, Md	107
37	*January 27*	*Anderson*	*Brown Bros. Standard Ammoniated Fertilizer*	*F. W. Wagener & Co*	*Charleston, S. C*	37
105	February 12	Chester	Buffalo Bone Guano	Furman Farm Improvement Co	Atlanta, Ga	105
165	February 24	Mayesville	Carolina Fertilizer	Ashepoo Phosphate Co	Charleston, S. C	165
113	February 12	Chester	Catawba Fertilizer	Catawba Oil and Fertilizing Co	Chester, S. C	113
23	*January 22*	*Greenville*	*Colgate Manure.* (Canton's)		*Baltimore, Md*	23
120	February 13	Rock Hill	Cotton Food	Maryland Fertilizing Co	Baltimore, Md	120
178	March 2	Darlington	Cotton Grower			178
217	March 28	Johnston's	Cranston's Ammoniated Dissolved Bone	R. P. Sibley	Augusta, Ga	217
44	January 28	Anderson	Crayton & Son's Ammoniated Fertilizer	B. F. Crayton & Sons	Anderson, S. C	44
68	*February 4*	*Spartanburg*	*Crescent Bone Fertilizer*	*Perry M. DeLeon*	*New York*	68
123	*February 13*	*Rock Hill*	*Domestic Ammoniated Fertilizer*	*Domestic Fertilizer Co*	*Columbia, S. C*	123
77	February 6	Union	Duncan's Ammoniated Compound	Domestic Fertilizer Co	Columbia, S. C	77

Tables of Analyses and Relative Commercial Values, Season of 1884-85, *with Manufacturers' Minimum Guarantees.*

TABLE I. *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees

Sample Number.	BRAND OF FERTILIZER.	Moisture.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K2 O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K2 O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
57	*Eddystone Soluble Guano*	15.75	12.00	3.22	6.65	2.13	8.78	2.57	3.12	*0.98*	$21 75	8.00	2.00	*1.00*	$17 40	57
212	Eddystone Soluble Guano	16.55	11.39	2.50	6.02	2.87	8.89	2.32	2.82	1.56	21 58	8.00	2.00	1.00	17 40	212
139	*Edisto Ammoniated Fertilizer*	13.85	13.92	1.66	9.73	2.53	12.26	1.00	*1.21*	1.37	20 94	8.00	*2.50*	1.50	19 40	139
225	*E. Frank Coe's Ammoniated Bone Superphosphate*	15.00	10.53	1.28	7.17	2.08	*9.25*	2.41	2.93	2.37	23 19	*10.00*	2.43	1.50	21 79	225
8	Etiwan Guano	14.95	10.75	2.52	6.66	1.57	8.23	2.75	3.34	1.95	22 67	8.00	2.00	1.00	17 40	8
133	Eureka Ammoniated Bone	10.90	11.90	1.06	9.34	1.50	10.84	2.64	3.20	....	23 69	8.00	2.00	....	16 40	133
136	Eutaw Fertilizer	14.95	11.74	1.54	7.30	2.90	10.20	2.24	2.72	1.52	22 94	8.00	2.00	1.00	17 40	136
182	*Everett's High Grade Fertilizer*	9.85	10.88	1.06	8.06	1.76	9.82	4.01	*4.87*	1.35	28 73	8.00	*5.50*	1.00	27 90	182
28	*Ezell's Ammoniated Bone Superphosphate*	12.50	12.42	4.38	6.59	1.45	8.04	2.31	2.80	*1.20*	20 65	8.00	2.00	*1.25*	17 65	28
156	Farmers' Friend	14.45	11.33	1.15	7.94	2.24	10.18	1.65	2.00	1.52	20 75	8.00	2.00	1.00	17 40	156
130	Franklin's Dissolved Bone	16.30	10,37	1.63	7.17	1.57	8.74	1.74	2.11	4.16	18 85	8.00	2.00	1.00	17 40	130
103	Furman's High Grade Guano	12.70	12.35	2.21	8.19	1.95	10.14	2.89	3.51	2.36	26 07	10.00	2.50	2.00	22 50	103
99	Game Guano	21.40	9.09	0.70	5.50	2.89	8.39	2.47	3.00	2.20	22 11	8.00	2.50	2.00	19 90	99
209	Game Guano	17.23	10.11	1.34	4.80	3.97	8.77	2.45	2.98	2.35	22 73	8.00	2.00	2.00	18 40	209
193	*Georgia Ammoniated Bone Superphosphate*	14.40	12.58	3.17	7.10	2.31	9.41	1.61	*1.90*	1.80	19 81	8.00	*2.25*	1.25	18 40	193
34	Georgia Test Gunno	14.50	11.26	2.51	7.30	1.45	8.75	2.16	2.62	1.41	20 65	8.00	2.00	1.00	17 40	34
171	Gibbs & Co's. High Grade Ammoniated Phosphate	14.40	10.75	1.44	6.40	2.91	9.31	1.79	2.17	2.36	20 97	8.00	2.00	1.00	17 40	171
228	*Gowanus Bone Fertilizer*	15.85	10.98	1.62	7.68	1.68	9.36	1.81	*2.20*	2.44	21 21	8.00	*2.50*	2.00	19 90	228
229	*Gowanus Bone Fertilizer*	17.88	9.79	1.22	7.17	1.40	8.57	1.77	*2.15*	2.28	19 81	8.00	*2.50*	2.00	19 90	229
144	Grange's Mixture	17.15	9.86	0,77	7.80	1.29	9.09	1.97	2.39	1.43	20 40	8.00	2.00	1.00	17 40	144
32	Greenville Fertilizer	10.63	10.50	2.03	6.14	2.33	8.47	2.49	3.09	2.10	22 17	7.00	2.00	1.50	16 60	32
181	*Hogden Spencer Co's Ammoniated Phosphate*	11.60	10.62	0.22	8.58	1.82	10.40	2.81	3.41	*0.35*	24 10	10.00	3.00	*2.00*	24 00	181
215	*Huiett's Ammoniated Dissolved Bone*	14.60	12.10	2.67	6.85	2.58	*9.43*	0.88	1.07	3.10	18 57	*12.00*	1.00	2.00	20 60	215
21	*Inman's Monarch Guano*	13.95	9.28	0,77	6.27	2.24	*8.51*	2.25	2.73	1.80	21 05	*9.00*	2.00	1.50	19 20	21
124	*Jones & Robertson's Ammoniated Compound*	11.90	10.94	3.06	7.17	0.71	7.88	1.18	*1.43*	3.01	17 54	7.00	*2.00*	3.00	18 10	124

Tables of Analyses and Relative Commercial Values, Season of 1884-85, *with Manufacturers' Minimum Guarantees.*

TABLE I. *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
57	*January 31*	*Greenville*	*Eddystone Soluble Guano*	*Clark's Cove Guano Co*	***New Bedford, Mass***	57
212	March 27	Batesburg	Eddystone Soluble Guano	Clark's Cove Guano Co	New Bedford, Mass	212
139	*February 19*	*Camden*	*Edisto Ammoniated Fertilizer*	*Edisto Phosphate Co*	*Charleston, S. C*	139
225	*May 20*	*Orangeburg*	*E. Frank Coe's Ammoniated Bone Superphosphate*	*E. Frank Coe*	*New York*	225
8	January 20	Newberry	Etiwan Guano	Etiwan Phosphate Co	Charleston, S. C	8
133	February 14	Winnsboro	Eureka Ammoniated Bone	Atlantic and Virginia Fert'g Co	Orient, L. I	133
136	February 14	Winnsboro,	Eutaw Fertilizer	Ashepoo Phosphate Co	Charleston, S. C	136
182	*March 6*	*Bennettsville*	*Everett's High Grade Fertilizer*	*Read & Co*	*New York*	182
28	*January 30*	*Greenville*	*Ezell's Ammoniated Bone Superphosphate*	*Ezell Guano Co*	*Baltimore, Md*	28
156	February 23	Sumter	Farmers' Friend	Read & Co	New York	156
130	February 14	Winnsboro	Franklin's Dissolved Bone	H. Franklin	Augusta, Ga	130
103	February 12	Chester	Furman's High Grade Guano	Furman Farm Improvement Co	Atlanta, Ga	103
99	February 10	Yorkville	Game Guano	Baltimore Guano Co	Baltimore, Md	99
209	March 21	Columbia	Game Guano	Baltimore Guano Co	Baltimore, Md	209
193	*March 12*	*Marion*	*Georgia Ammoniated Bone Superphosphate*	*Kerchner & Calder Bros*	*Wilmington, N. C*	193
34	January 27	Anderson	Georgia Test Guano	John Merryman & Co	Baltimore, Md	34
171	February 26	Timmonsville	Gibbes & Co.'s High Grade Ammoniated Phosphate	E. J. Powers	Wilmington, N. C.	171
228	*May 21*	*Bamberg*	*Gowanus Bone Fertilizer*	*Dowie & Moise*	*Charleston, S. C*	228
229	*July 3*	*Scranton*	*Gowanus Bone Fertilizer*	*Dowie & Moise*	*Charleston, S. C*	229
144	February 19	Camden	Grange's Mixture			144
32	January 31	Greenville	Greenville Fertilizer	Greenville Oil Mill	Greenville, S. C	32
181	*March 6*	*Bennettsville*	*Hodgdon, Spencer & Co.'s Ammoniated Phosphate*	*The Hodgdon & Spencer Co*	*Norfolk, Va*	181
215	*March 27*	*Batesburg*	*Huiett's Ammoniated Dissolved Bone*			215
21	*January 22*	*Greenville*	*Inman's Monarch Guano*	*Williams, Clark & Co*	*New York*	21
124	*February 13*	*Rock Hill*	*Jones & Robertson's Ammoniated Compound*	*Domestic Fertilizing Co*	*Columbia, S. C*	124

Tables of Analyses and Relative Commercial Values, Season of 1884-85, with Manufacturers' Minimum Guarantees.

TABLE I. *Continued.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

Sample Number.	BRAND OF FERTILIZER.	Moisture.	PHOSPHORIC ACID:					Nitrogen.	Equivalent to Ammonia.	Potash. (K2 O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K2 O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C	P. C.		
48	*Ligon (W. S.) & Co's. Dissolved Bone*	16.60	11.26	2.56	6.78	1.92	*8.70*	1.84	2.23	0.39	$18 89	*8.71*	2.00	0.58	$17 90	48
47	*Ligon (W. S.) & Co's. Standard Ammoniated Fertilizer*	13.20	11.84	2.99	5.76	3.09	*8.85*	1.67	*2.03*	*1.34*	18 94	*9.56*	*2.50*	*1.77*	21 77	47
98	L. and R. Ammoniated Guano	10.90	11.71	3.15	6.66	1.90	8.56	1.87	2.27	2.03	19 97	8.00	2.00	1.50	17 90	98
196	Marion Fertilizer	21.38	9.47	1.23	4.86	3.38	8.24	2.47	3.00	1.49	21 20	8.00	2.50	1.00	18 90	196
198	Marion Fertilizer	14.43	10.59	1.71	6.53	2.35	8.88	2.68	3.25	2.57	23 86	8.00	2.50	2.00	19 90	198
35	*Merryman's Ammoniated Dissolved Bone*	12.50	12.03	3.20	8.45	0.38	*8.83*	2.53	3.07	2.07	22 76	*10.00*	2.43	1.50	21 79	35
40	Navassa Ammoniated Cotton Fertilizer	13.75	13.57	3.57	5.63	4.37	10.00	1.81	2.20	1.64	21 24	8.00	1.50	1.00	15 90	40
115	Navassa Ammoniated Cotton Fertilizer	14.05	13.12	2.88	4.86	5.38	10.24	2.16	2.62	1.51	22 68	8.00	2.00	1.00	17 40	115
39	Navassa Ammoniated Soluble Guano	14.15	13.38	3.20	4.68	5.50	10.18	2.55	3.09	1.81	24 31	8.00	2.00	1.00	17 40	39
114	Red Navassa Guano Ammoniated	13.95	13.12	2.56	4.99	5.57	10.56	1.84	2.23	1.72	22 14	9.00	1.50	1.25	17 45	114
66	Ober & Son's Soluble Ammoniated Superphosphate	12.50	10.98	1.92	8.13	0.93	9.06	2.73	3.32	2.01	23 75	8.00	2.00	1.25	17 60	66
224	Oglethorpe Ammoniated Dissolved Bone	14.50	12.06	2.75	7.23	2.08	9.31	1.81	2.20	2.95	21 65	9.00	2.00	2.50	20 20	224
220	Our Own Ammoniated Bone Fertilizer	15.30	10.53	0.96	6.78	2.79	9.57	1.94	2.36	1.56	21 08	9.00	2.00	1.50	19 20	220
134	*Owl Brand Guano*	13.70	13.06	3.36	7.94	1.76	9.70	1.53	*1.86*	1.90	20 09	8.00	*2.00*	1.00	17 40	134
88	Patapsco Ammoniated Soluble Phosphate	12.35	14.21	3.78	7.17	3.26	10.43	1.93	2.34	1.58	22 16	8.00	2.00	1.00	17 40	88
164	Patapsco Ammoniated Soluble Phosphate	12.55	12.99	3.89	7.68	1.42	9.10	1.81	2.20	1.89	20 32	8.00	2.00	1.00	17 40	164
89	Pelican Bone Fertilizer	14.75	10.05	1.66	7.04	1.35	8.39	2.29	2.78	2.14	21 39	8.00	2.50	2.00	19 90	89
183	*Peruvian Guano*	18.30	19.13	4.03	0.00	15.10	*15.10*	6.57	*7.08*	....	43 57	*17.50*	*8.00*	....	46 75	183
200	Pine Island Ammoniated Phosphate	21.50	9.79	1.09	4.35	4.35	8.70	2.22	2.70	1.93	21 34	8.00	2.00	1.00	17 40	200
222	Planters' Fertilizer	12.15	10.91	2.45	6.72	1.74	8.46	3.15	3.83	1.47	23 96	8.00	3.25	1.00	21 15	222
106	Planters' Friend	15.05	11.07	1.98	6.02	3.07	9.09	2.00	2.43	1.33	20 44	8.00	2.00	0.80	17 20	106
63	*Plow Brand Raw Bone Superphosphate*	11.55	11.94	2.14	6.53	3.27	*9.80*	2.61	3.17	2.30	24 55	*10.00*	2.75	2.25	23 50	63
188	Premium Guano	19.25	10.94	1.79	5.76	3.39	9.15	2.28	2.77	1.43	21 64	8.00	2.00	1.00	17 40	188
201	Quinnipiac Co.'s Fish, Bone and Potash	18.70	13.79	6.75	0.00	7.04	7.04	2.09	2.54	2.78	19 55	7.00	1.50	2.00	15 60	201
65	*Reliance Ammoniated Superphosphate*	11.25	10.69	2.03	5.57	3.09	*8.00*	1.76	2.16	2.39	20 13	*9.00*	2.00	2.00	19 70	65

Tables of Analyses and Relative Commercial Values, Season of 1884–85, *with Manufacturers' Minimum Guarantees.*

TABLE I. *Continued*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER
	1885.					
48	*January 28*	*Anderson*	*Ligon (W. S.) & Co.'s Dissolved Bone.*	*F. W. Wagener & Co*	*Charleston, S. C*	48
47	*January 28*	*Anderson*	*Ligon (W. S.) & Co.'s Standard Ammoniated Fertilizer*	*F. W. Wagener & Co*	*Charleston, S. C*	47
98	February 10	Yorkville	L. and R. Ammoniated Guano	Lorentz & Rittler	Baltimore, Md	98
196	March 13	Marion	Marion Fertilizer	Quinnipiac Fertilizer Co	New London, Conn	196
198	March 13	Marion	Marion Fertilizer	Read & Co	New York	198
35	*January 27*	*Anderson*	*Merryman's Ammoniated Dissolved Bone*	*John Merryman & Co*	*Baltimore, Md*	35
40	January 27	Anderson	Navassa Ammoniated Cotton Fertilizer	Navassa Guano Co	Wilmington, N. C	40
115	February 13	Rock Hill	Navassa Ammoniated Cotton Fertilizer	Navassa Guano Co	Wilmington, N. C	115
39	January 27	Anderson	Navassa Ammoniated Soluble Guano	Navassa Guano Co	Wilmington, N. C	39
114	February 13	Rock Hill	Red Navassa Guano, Ammoniated	Navassa Guano Co	Wilmington, N. C	114
66	February 4	Spartanburg	Ober & Son's Soluble Ammoniated Superphosphate	G. Ober & Sons	Baltimore, Md	66
224	April 2	Hampton	Oglethorpe Ammoniated Dissolved Bone.	Hammond, Hull & Co	Port Royal, S. C	224
220	April 1	Allendale	Our Own Ammoniated Bone Fertilizer	Savannah Guano Co	Savannah, Ga	220
134	*February 14*	*Winnsboro*	*Owl Brand Guano*	*Davie & Whittle*	*Petersburg, Va*	134
88	February 9	Yorkville	Patapsco Ammoniated Soluble Phosphate	Patapsco Guano Co	Baltimore, Md	88
164	February 24	Mayesville	Patapsco Ammoniated Soluble Phosphate	Georgia Chemical Works	Augusta, Ga	164
89	February 9	Yorkville	Pelican Bone Fertilizer	Dowie & Moise	Charleston, S. C	89
183	*March 6*	*Bennettsville*	*Peruvian Guano*	*The Hodgdon and Spencer Co.*	*Norfolk, Va*	183
200	March 13	Marion	Pine Island Ammoniated Phosphate.	Quinnipiac Fertilizer Co	New London, Conn	200
222	April 1	Allendale	Planters' Fertilizer	Read & Co.	New York	222
106	February 12	Chester	Planters' Friend	Read & Co.	New York	106
63	*February 4*	*Spartanburg.*	*Plow Brand Raw Bone Superphosphate*	*Walton, Whann & Co*	*Wilmington, Del*	63
188	March 12	Marion	Premium Guano	Geo. L. Arps	Norfolk, Va	188
201	March 13	Marion	Quinnipiac Co.'s Fish, Bone and Potash	Quinnipiac Fertilizer Co	New London, Conn	201
65	*February 4*	*Spartanburg*	*Reliance Ammoniated Superphosphate*	*Walton, Whann & Co*	*Wilmington, Del*	65

Tables of Analyses and Relative Commercial Values, Season of 1884–85, *with Manufacturers' Minimum Guarantees.*

TABLE I. *Concluded.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

Sample Number.	BRAND OF FERTILIZER.	Moisture.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.				Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.					Available Phosphoric Acid.	Ammonia.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.		
167	Reliance Ammoniated Superphospate	11.05	11.07	1.54	5.63	3.90	9.53	1.72	2.09	2.40	$21 06	9 00	2.00	2.00	$19 70	167
184	Rialto Guano	15.75	10.18	0.86	7.81	1,51	9.32	1.99	2.42	1.47	20 85	8.00	2.00	1 35	17 75	184
211	*Richland's Pride*	13.10	7.07	0.60	5.25	1.22	*6.47*	2.15	2.61	3.92	20 16	*6.73*	2 28	3.77	19 36	211
46	*Russell Coe's Ammoniated Bone Superphosphate*	15.80	11.01	2.90	4.74	3,37	*8.11*	2.51	3.05	2.22	21 91	*10.00*	2.25	1.35	21 10	46
18	*Sea Gull Ammoniated Dissolved Bone Phosphate*	13.15	12.71	3.18	8.19	1.34	*9.53*	1.32	1.60	2.69	19 88	*10.00*	1.50	2.00	19 50	18
27	*Seal, Lawson, Kessler & Co.'s Ammoniated Bone Superphosphate*	12.73	10.69	2.62	5.76	2.31	*8.07*	2.45	2.98	1.00	20 43	*10.00*	2.50	1.00	21 50	27
10	Star Brand Guano	19.90	10.90	1.78	7.55	1.57	9.12	2.07	2.51	1.34	20 73	7.00	1.50	1.00	14 60	10
4	Soluble Pacific Guano	13.35	12.42	3.41	7.55	1.46	9.01	2.51	3.05	1.68	22 54	8.00	2.00	1 00	17 40	4
142	*Stono Soluble Guano*	11.15	9.63	2.58	4.74	2.31	*7 05*	3.04	3.69	2 28	22 50	*8.00*	2.50	1.00	18 90	142
152	*Stono Soluble Guano*	9.95	9.88	3.52	4.29	2.07	*6.36*	2.93	3.56	2.20	21 15	*8 00*	2.50	1.00	18 90	152
227	*Stono Soluble Guano*	11.15	9.63	3.12	3.90	2 61	*6.51*	2.26	2.74	3.42	20 00	*8.00*	2.50	1.00	18 90	227
199	*Stackhouse & Holliday's High Grade Ammoniated Phosphate*	13.93	12.42	3.17	6.53	2.72	9.25	2.27	2.76	*1.88*	22 19	8.00	2.50	*2.00*	19 90	199
146	*Wagener's Ammoniated Dissolved Bone*	16.70	11.52	1.79	6.78	2.95	9.73	1.49	*1.81*	0.89	18 97	8.71	*1.84*	0.58	17 42	146
13	Wando Fertilizer	11.30	11.01	1.70	7.42	1.89	9.31	2 49	3.02	1.58	22 74	8.00	2.50	1.00	18 90	13
157	*Wilcox, Gibbs & Co.'s Manipulated Guano*	13.40	8.06	0.51	4.99	2.56	*7.55*	2.22	2 69	3.23	21 15	*8.00*	2.50	2.00	19 90	157
191	*Wilcox, Gibbs & Co.'s Manipulated Guano*	13.90	8.64	0.86	4.86	2.92	*7.78*	2.58	3.13	2.56	22 06	*8 00*	2.50	2.00	19 90	191
190	Zell's Ammoniated Bone Superphosphate	14.70	12.03	2.50	7.55	1.98	9.53	1.97	2.39	1.87	21 43	8.00	2.00	1.00	17 40	190
180	Zell's Calvert Guano	12.50	12.80	3.20	6.78	2.82	9.60	1.75	2.12	1.66	20 50	8.00	2.00	1.00	17 40	180

Tables of Analyses and Relative Commercial Values, Season of 1884-85, *with Manufacturers' Minimum Guarantees.*

TABLE I. *Concluded.*—AMMONIATED SUPERPHOSPHATES AND FERTILIZERS.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
167	February 25	Timmonsville	Reliance Ammoniated Superphosphate	Walton, Whann & Co	Wilmington, Del	167
184	March 7	Cheraw	Rialto Guano			184
211	*March 27*	*Batesburg*	*Richland's Pride*	*Columbia Oil Mills Co*	*Columbia, S. C.*	211
46	*January 28*	*Anderson*	*Russell Coe's Ammoniated Bone Superphosphate*	*Russell Coe*	*Linden, N. Y.*	46
18	*January 22*	*Greenville*	*Sea Gull Ammoniated Dissolved Bone Phosphate*	*Edward Snowden*	*Baltimore, Md*	18
27	*January 30*	*Chester*	*Seal, Lawson, Kessler & Co.'s Ammoniated Bone Superphosphate*	*Seal, Lawson, Kessler & Co*	*Baltimore, Md*	27
10	January 20	Ninety-Six	Star Brand Guano	Allison & Addison		10
4	January 19	Newberry	Soluble Pacific Guano	Pacific Guano Co	Boston, Mass	4
142	*February 19*	*Camden*	*Stono Soluble Guano*	*Stono Phosphate Co*	*Charleston, S. C*	142
152	*February 21*	*Manning*	*Stono Soluble Guano*	*Stono Phosphate Co*	*Charleston, S. C*	152
227	*May 21*	*Bamberg*	*Stono Soluble Guano*	*Stono Phosphate Co*	*Charleston, S. C*	227
199	*March 13*	*Marion*	*Stackhouse & Holliday's High Grade Ammoniated Phosphate*	*Read & Co*	*New York*	199
146	*February 19*	*Camden*	*Wagener's Ammoniated Dissolved Bone*	*F. W. Wagener & Co*	*Charleston, S. C*	146
13	January 22	Greenville	Wando Fertilizer	Wando Phosphate Co	Charleston, S. C	13
157	*February 23*	*Sumter*	*Wilcox, Gibbs & Co.'s Manipulated Guano*	*Wilcox & Gibbs Guano Co*	*Charleston, S. C*	157
191	*March 12*	*Marion*	*Wilcox, Gibbs & Co.'s Manipulated Guano*	*Wilcox & Gibbs Guano Co*	*Charleston, S. C*	191
190	March 12	Marion	Zell's Ammoniated Bone Superphosphate	Zell Guano Co	Baltimore, Md	190
180	March 4	Cheraw	Zell's Calvert Guano	Zell Guano Co	Baltimore, Md	180

Tables of Analyses and Relative Commercial Values, Season of 1884-85, *with Manufacturers' Minimum Guarantees.*

TABLE II.—ACID PHOSPHATES WITH AND WITHOUT POTASH.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers's guarantees.

Sample Number.	BRAND OF ACID PHOSPHATE.	Moisture.	PHOSPHORIC ACID.					Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.			Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.			Available Phosphoric Acid.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.		
31	Ashepoo Acid Phosphate	14.15	13.51	3.14	8.06	2.31	10.37	1.45	$14 93	10.00	1.00	$14 00	31
90	Ashley Acid Phosphate	14 45	13.89	1.18	9.22	3.49	12.71	1.44	17 96	12.00	1.00	16 60	90
33	Atlantic Acid Phosphate	12.20	14.30	1 57	10.75	1.98	12.73	1.00	17 55	12.00	1.00	16 60	33
197	Baltimore Soluble Bone	15.95	14.85	2.05	7.87	4.93	12 80	....	16 64	12 00	....	15 60	197
38	*Brown Bros. Standard Acid Phosphate*	16.98	13.38	1.31	11.14	0 93	*12.07*	....	15 69	*12.25*	....	15 93	38
49	Combahee Acid Phosphate	13.20	14.66	3.49	8.58	2.59	11.17	1.04	15 56	10.00	1.00	14 00	49
42	Crayton & Son's Acid Phosphate	15.53	13.31	2.81	8.00	2.50	10.50	1.97	15 62	10.50	1.50	15 15	42
24	*Diamond Soluble Bone*	11.63	15.74	4.10	6.91	4.73	*11.64*	....	15 13	*13.00*	....	16 90	24
82	Domestic Acid Phosphate with Potash	15 70	10.50	0.48	8.96	1.06	10 02	4.09	17 12	9.00	3.50	15 20	82
76	Duncan's Acid Phosphate with Potash	14.60	11.58	1 34	8.83	1.41	10.24	4.00	17 31	9.00	3.50	15 20	76
81	*Duncan's Acid Phosphate*	14.00	11.71	1.50	8.32	1.89	10.21	*3.73*	17 00	8.00	*4.00*	14 40	81
19	Edisto Acid Phosphate	14.20	13.73	1.79	10.37	1.57	11.94	1.54	17 06	10.50	1.50	15 15	19
11	Edisto Acidulated Rock	12.50	17.12	3.39	11.78	1 95	13.73	....	17 85	12.00	....	15 60	11
6	Etiwan Dissolved Bone	13.55	15 52	3.31	9.14	3.08	12.22	....	15 89	12.00	....	15 60	6
75	Eutaw Acid Phosphate	11.80	14.85	1 94	9.09	3.82	12.91	1.20	18 08	10.00	1.00	14 00	75
104	Farish Furman's Formula	14.00	11 65	1 57	8.19	1.89	10.08	4.79	17 89	10.00	3.00	16 00	104
70	*Farr & Thomson's Acid Phosphate*	13.30	13 60	2.78	7.42	3.40	10.82	*1.54*	15 61	8.00	*2.00*	12 40	70
208	*Georgia Chemical Works Acid Phosphate*	14.08	14.40	2.05	9.02	3.33	12 35	*0 98*	17 04	10.00	*1.00*	14 00	208
96	Irish Bone Dissolved	10.60	14.46	1.06	10.24	3.16	13.40	....	17 42	10.00	....	13 00	96
95	Irish Dissolved Bone	12.15	15.68	2 58	10.50	2.60	13.10	....	17 03	11.00	....	14 30	95
3	Merryman's High Grade Acid Phosphate	14.45	12.67	0.10	11.26	1.31	12.57	....	15 80	11.00	....	14 30	3
41	Navassa "Acid" Phosphate	13.85	13.95	2.64	8.06	3.25	11.31	1.47	16 17	11.00	1.25	15 55	41
187	New York Soluble Bone	10,55	14.59	2.91	4.10	7.58	11.68	....	15 18	10.00	....	13 00	187
29	Our Acid Phosphate	7.25	15.90	4.38	10.11	1.41	11.52	....	14 98	10 00	....	13 00	29
54	Pacific Dissolved Bone Phosphate of Lime	11.50	17.12	4.42	9.60	3.10	12.70	....	16 51	10.00	....	13 00	54

Tables of Analyses and Relative Commercial Values, Season of 1884–85, *with Manufacturers' Minimum Guarantees.*

TABLE II.—ACID PHOSPHATES WITH AND WITHOUT POTASH.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF ACID PHOSPHATE.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
31	January 31	Greenville	Ashepoo Acid Phosphate	Ashepoo Phosphate Co	Charleston, S. C	31
90	February 9	Yorkville	Ashley Acid Phosphate	Ashley Phosphate Co	Charleston, S. C	90
33	January 27	Anderson	Atlantic Acid Phosphate	Atlantic Phosphate Co	Charleston, S. C	33
197	March 13	Marion	Baltimore Soluble Bone	Baltimore Guano Co	Baltimore, Md	197
38	*January 27*	*Anderson*	*Brown Bros. Standard Acid Phosphate*	*F. W. Wagener & Co*	*Charleston, S. C*	38
49	January 28	Anderson	Combahee Acid Phosphate	Ashepoo Phosphate Co	Charleston, S. C	49
42	January 28	Anderson	Crayton & Son's Acid Phosphate	Manufactured for B. F. Crayton & Sons	Anderson, S. C	42
24	*January 30*	*Greenville*	*Diamond Soluble Bone*	*Walton, Whann & Co*	*Wilmington, Del*	24
82	February 9	Yorkville	Domestic Acid Phosphate with Potash	Domestic Fertilizing Co	Columbia, S. C	82
76	February 6	Union	Duncan's Acid Phosphate with Potash	Domestic Fertilizing Co	Columbia, S. C	76
81	*February 6*	*Union*	*Duncan's Acid Phosphate*	*Edisto Phosphate Co*	*Charleston, S. C*	81
19	January 22	Greenville	Edisto Acid Phosphate	Edisto Phosphate Co	Charleston, S. C	19
11	January 20	Ninety-Six	Edisto Acidulated Rock	Edisto Phosphate Co	Charleston, S. C	11
6	January 20	Newberry	Etiwan Dissolved Bone	Etiwan Phosphate Co	Charleston, S. C	6
75	February 6	Union	Eutaw Acid Phosphate	Ashepoo Phosphate Co	Charleston, S. C	75
104	February 12	Chester	Farish Furman's Formula	Furman Farm Improvement Co.	Atlanta, Ga	104
70	*February 6*	*Union*	*Farr & Thomson's Acid Phosphate*	*Etiwan Phosphate Co*	*Gharleston, S. C*	70
208	*March 21*	*Columbia*	*Georgia Chemical Works Acid Phosphate*	*Georgia Chemical Works*	*Augusta, Ga*	208
96	February 10	Yorkville	Irish Bone Dissolved	W. B. Seal	Baltimord, Md	96
95	February 10	Yorkville	Irish Dissolved Bone	Pelzer, Rodgers & Co	Charleston, S. C	95
3	January 19	Newberry	Merryman's High Grade Acid Phosphate	John Merryman & Co	Baltimore, Md	3
41	January 27	Anderson	Navassa "Acid" Phosphate	Navassa Guano Co	Wilmington, N. C	41
187	March 12	Marion	New York Soluble Bone	Read & Co	New York, N. Y	187
29	January 31	Greenville	Our Acid Phosphate	Atlantic and Virginia Fertil'r Co	Orient, L. I	29
54	January 30	Seneca City	Pacific Dissolved Bone Phosphate of Lime	Glidden & Curtis	Boston, Mass	54

Tables of Analyses and Relative Commercial Values, Season of 1884–85, with Manufacturers' Minimum Guarantees.

TABLE II. *Concluded*—ACID PHOSPHATES WITH AND WITHOUT POTASH.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

Sample Number.	BRAND OF ACID PHOSPHATE.	Moisture.	PHOSPHORIC ACID.					Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE.			Sample Number.
			Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.			Available Phosphoric Acid.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.	
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.		
206	Pacific Dissolved Bone Phosphate of Lime	14.10	15.94	2.99	9.60	3.35	12.95	....	$16 84	10.00	....	$13 00	206
56	Palmetto Acid Phosphate	11.75	14.53	3 52	7 94	3,07	11.01	1.56	15 87	10.00	1.00	14 00	56
87	Pelican Acid Phosphate	14.45	13.70	3.10	7.28	3.32	10.60	1.64	15 42	10.00	1.50	14 50	87
151	Pelican Dissolved Bone	17.35	14.78	1.31	9.86	3.61	13.47	....	17 51	12 00	....	15 60	151
223	Port Royal Acid Phosphate	10.70	15.46	2.05	10.75	2.66	13.41	....	17 43	12.00	....	15 60	223
119	Roddey's Globe Acid Phosphate	14 00	11.14	1.73	7.79	1.62	9.41	4.21	16 44	9.00	3.50	15 20	119
121	Roddey's High Grade Acid Phosphate	13.15	14.46	2.92	9.09	2.45	11.54	1.87	16 87	10.50	1.50	15 15	121
45	*Russell Coe's Bone Superphosphate*	17.43	13.31	4.13	5.95	3.23	*9.18*	1.64	15 31	*10.00*	1.50	14 50	45
127	Smith's (A. E.) Catawba Acid Phosphate	14.15	10.88	1 72	7.17	1.99	9.16	4.23	16 14	9.00	3.50	15 20	127
15	Stono Acid Phosphate	14.05	13.18	2 20	8.58	2.40	10.98	1.41	15 69	10.00	1.00	14 00	15
108	Stono Acid Phosphate	13.30	12.86	2 66	6.66	3.54	10.20	1.05	14 91	10.00	1.00	14 00	108
186	*Stono Dissolved Bone*	13.70	14.46	2.21	7.68	4 57	*12.25*	....	15 93	*13 00*	....	16 90	186
140	Wagener's Acid Phosphate	16.70	13.63	1.12	11 52	0.99	12.51	....	16 26	12.25	....	15 93	140
12	Wando Acid Phosphate	12 65	14.21	3 25	9.73	1.23	10.96	1.08	15 33	10.00	1.00	14 00	12
185	*Wilcox, Gibbs & Co.'s Superphosphate*	12.90	9.54	0.93	5.38	3.23	*8.61*	3.48	14 67	*9.00*	2.00	13 70	185

Tables of Analyses and Relative Commercial Values, Season of 1884–85, *with Manufacturers' Minimum Guarantees.*

TABLE II. *Concluded.*—ACID PHOSPHATES WITH AND WITHOUT POTASH.

NOTE.—Brands printed in italics are below their guarantees in one or more constituents, as may be seen by comparison of analyses with manufacturers' guarantees.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND OF ACID PHOSPHATE.	NAME OF MANUFACTURER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
206	March 21	Columbia	Pacific Dissolved Bone Phosphate of Lime	Glidden & Curtis	Boston, Mass	206
56	January 30	Seneca City	Palmetto Acid Phosphate	Ashepoo Phosphate Co.	Charleston, S. C.	56
87	February 9	Yorkville	Pelican Acid Phosphate	Dowie & Moise	Charleston, S. C.	87
151	February 21	Manning	Pelican Dissolved Bone	Dowie & Moise	Charleston, S. C.	151
223	April 2	Hampton	Port Royal Acid Phosphate	Hammond, Hull & Co.	Port Royal, S. C.	223
119	February 13	Rock Hill	Roddey's Globe Acid Phosphate	Domestic Fertilizing Co.	Columbia, S. C.	119
121	February 13	Rock Hill	Roddey's High Grade Acid Phosphate	Domestic Fertilizing Co.	Columbia, S. C.	121
45	*January 28*	*Anderson*	*Russell Coe's Bone Superphosphate*	*Russel Coe*	*Linden, N. J.*	45
127	February 13	Rock Hill	Smith's (A. E.) Catawba Acid Phosphate	Domestic Fertilizing Co.	Columbia, S. C.	127
15	January 22	Greenville	Stono Acid Phosphate	Stono Phosphate Co.	Charleston, S. C.	15
108	February 12	Chester	Stono Acid Phosphate	Stono Phosphate Co.	Charleston, S. C.	108
186	*March 12*	*Marion*	*Stono Dissolved Bone*	*Stono Phosphate Co.*	*Charleston, S. C.*	186
140	February 19	Camden	Wagener's Acid Phosphate	F. W. Wagener & Co.	Charleston, S. C.	140
12	January 22	Greenville	Wando Acid Phosphate	Wando Phosphate Co.	Charleston, S. C.	12
185	*March 7*	*Cheraw*	*Wilcox, Gibbs & Co.'s Superphosphate*	*Wilcox & Gibbs Guano Co.*	*Charleston, S. C.*	185

Tables of Analyses and Relative Commercial Values, Season of 1884–85, with Manufacturers' Minimum Guarantees.

TABLE III. MISCELLANEOUS.—KAINITS, COTTON SEED MEAL, &C.

Sample Number.	BRAND.	Moisture.	Phosphoric Acid.	Nitrogen.	Equivalent to Ammonia.	Potash.	Equivalent to Sulphate of Potash.	Relative Commercial Value per 2,000 lbs.	MANUFACTURERS' MINIMUM GUARANTEE. Phosphoric Acid.	Ammonia.	Potash.	Equivalent to Sulphate of Potash.	Relative Commercial Value per 2,000 lbs.	Sample Number.
		P. C.	P. C.	P. C.	P. C.	P. C.	P. C.		P. C.	P. C.	P. C.	P. C.		
226	Bone Meal	6.78	19.32	3.33	4.04									226
148	Cotton Seed Meal, Central Oil Mills		2.69	7.12	8.64	1.70								148
170	Cotton Seed Meal, Charleston Oil Manufacturing Co.		2.43	6.78	8.23	1.62								170
147	Cotton Seed Meal, DeSoto Oil Co.		2.16	6.59	8.00	1.53								147
149	Etiwan Ash Element	2.50	12.42			4.90			10.00		3.00			149
179	Stono Ash Element	5.85	10.50			4.13			10.08		3.00			179
118	Stono Floats		25.98											118
30	Ashepoo Co.'s Kainit					13.67	25.27	$13 67			11.90	22.00	$11 90	30
73	Atlantic Co.'s Kainit					12.78	23.63	12 78			12.44	23.00	12 44	73
5	Baldwin & Co.'s Kainit					13.01	24.05	13 01			11 00	20.34	11 00	5
189	Baltimore Guano Co.'s Kainit					13.48	24.92	13 48			12.44	23.00	12 44	189
219	Crane's Kainit					13 32	24.62	13 32			12.98	24.00	12 98	219
214	DeLeon's Kainit					13.59	25 12	13 59			11.00	20.34	11 00	214
122	Domestic Co.'s Kainit					13.01	24.05	13 01			12.44	23.00	12 44	122
86	Dowie & Moise's Kainit					13.01	24.05	13 01			12.44	23.00	12 44	86
25	Edisto Co.'s Kainit					12.55	23 20	12 55			12.44	23.00	12 44	25
150	Etiwan Co.'s Kainit					14.38	26.58	14 38			12.00	22.18	12 00	150
9	Georgia Chemical Works Kainit					12 67	23.42	12 67			10.82	20.00	10 82	9
216	Huiet's Kainit					13.48	24.92	13 48						216
160	Kerchner & Calder Bros.' Kainit					13.92	25.73	13 92			12.44	23.00	12 44	160
102	Middleton & Co.'s Kainit					13.01	24.05	13 01						102
60	Powers's Kainit					13.44	24.85	13 44			12.44	23.00	12 44	60
112	Royster & Strudwick's Kainit					13.61	25.16	13 61						112
78	Stono Co.'s Kainit					13.90	25.70	13 90			12.44	23.00	12 44	78
43	Wagener & Co.'s Kainit					13.65	25.23	13 65			12.44	23.00	12 44	43
14	Wando Co.'s Kainit					13.67	25.27	13 67			11.90	22.00	11 90	14
154	Wilcox & Gibbs Co.'s Kainit					13.69	25.31	13 69			12.44	23.00	12 44	154
51	*Lee's Prepared Agricultural Lime					2.07					2 00			51

*Lee's Prepared Lime contains also 38.12 per cent. of Lime, and 7.49 per cent. of Carbonic Acid—17.02 per cent. of Carbonate of Lime.

Tables of Analyses and Relative Commercial Values, Season of 1884-85, *with Manufacturers' Minimum Guarantees.*

TABLE III. MISCELLANEOUS.—KAINITS, COTTON SEED MEAL, &C.

SAMPLE NUMBER.	DATE OF SAMPLING.	WHERE SAMPLED.	BRAND.	MANUFACTURER OR IMPORTER.	WHERE MANUFACTURED.	SAMPLE NUMBER.
	1885.					
226	May 20	Orangeburg	Bone Meal	Sold by R. Copes	Orangeburg, S. C.	226
148	February 20	Wedgefield	Cotton Seed Meal	Central Oil Mills	Selma, Ala	148
170	February 25	Timmonsville	Cotton Seed Meal	Charleston Oil Manf'g Co	Charleston, S. C.	170
147	February 19	Camden	Cotton Seed Meal	DeSoto Oil Co	Memphis, Tenn	147
149	February 20	Wedgefield	Etiwan Ash Element	Etiwan Phosphate Co	Charleston, S. C	149
179	March 2	Darlington	Stono Ash Element	Stono Phosphate Co	Charleston, S. C	179
118	February 13	Rock Hill	Stono Floats	Stono Phosphate Co	Charleston, S. C	118
30	January 31	Greenville	Kainit	Ashepoo Phosphate Co	Charleston, S. C	30
73	February 6	Union	Kainit	Atlantic Phosphate Co	Charleston, S. C	73
5	January 20	Newberry	Kainit	Baldwin & Co	Savannah, Ga	5
189	March 12	Marion	Kainit	Baltimore Guano Co	Baltimore, Md	189
219	March 28	Trenton	Kainit	Geo. W. Crane	Augusta, Ga	219
214	March 27	Batesburg	Kainit	Perry M. DeLeon	Savannah, Ga	214
122	February 13	Rock Hill	Kainit	Domestic Fertilizer Co	Columbia, S. C	122
86	February 9	Yorkville	Kainit	Dowie & Moise	Charleston, S. C	86
25	January 30	Greenville	Kainit	Edisto Phosphate Co	Charleston, S. C	25
150	February 20	Wedgefield	Kainit	Etiwan Phosphate Co	Charleston, S. C	150
9	January 20	Ninety Six	Kainit	Georgia Chemical Works	Augusta, Ga	9
216	March 27	Batesburg	Kainit	Sold by J. H. Huiet	Batesburg, S. C	216
160	February 23	Sumter	Kainit	Kerchner & Calder Bros	Wilmington, N. C	160
102	February 12	Chester	Kainit	J. I. Middleton & Co	Baltimore, Md	102
60	February 4	Spartanburg	Kainit	E. J. Powers	Wilmington, N. C	60
112	February 12	Chester	Kainit	Royster & Strudwick	Norfolk, Va	112
78	February 6	Union	Kainit	Stono Phosphate Co	Charleston, S. C	78
43	January 28	Anderson	Kainit	F. W. Wagener & Co	Charleston, S. C	43
14	January 22	Greenville	Kainit	Wando Phosphate Co	Charleston, S. C	14
154	February 21	Manning	Kainit	Wilcox & Gibbs Guano Co	Charleston, S. C	154
51	January 30	Seneca City	Lee's Prepared Agricultural Lime	A. S. Lee	Richmond, Va	51

TABLE IV.—SAMPLES ANALYZED FOR FARMERS

NOTICE.—The Department of Agriculture does not guarantee the authenticity of these samples.

Analysis Number.	SAMPLE SENT IN BY	ADDRESS OF SENDER.	MARK ON SAMPLES.	Moisture.	PHOSPHORIC ACID.					Nitrogen.	Equivalent to Ammonia.	Potash. (K₂ O)	Relative Commercial Value per 2,000 lbs.
					Total.	Insoluble.	Soluble.	Reduced or Reverted.	Available.				
				P. C.	P. C.	P. C.	P. C.	P, C.	P. C.	P. C.	P. C.	P. C.	
197	Hon. J. W. Williamson	Darlington	Kainit	....	....	....	....	....	....	....	....	12.97	$12 97
341	P. R. Brown	Anderson	Compost	....	0.26	0.08	0.00	0.18	0.18	0.83	1.01	0.64	3 90
342	J. W. Wofford	Spartanburg	A—Merryman's Am. Dis. Bone	8.70	12.13	2.93	6.53	2.67	9.20	2.23	2.71	1.90	21 99
343	J. W. Wofford	Spartanburg	B—Crescent Bone	11.75	10.94	2.85	4.48	3.61	8.09	1.93	2.34	2.57	20 11
344	J. W. Wofford	Spartanburg	C - Baldwin's Am. Dis. Bone	12.85	11.26	1.66	8.26	1.34	9.60	1.73	2.10	3.10	21 88
352	Hon. C. S. McCall	Bennettsville	McCall's High Grade	....	12.93	3.97	5.38	3.58	8.96	4.52	5.49	....	28 12
353	Hon. C. S. McCall	Bennettsville	McCall's Perfection	....	14.98	4.19	0.26	10.53	10.79	8.99	10.92	....	46 79
354	Hon. C. S. McCall	Bennettsville	McCall's Standard	....	10.37	2.96	4.48	2.93	7.41	1.63	1.98	....	15 57
367	Hon. C. S. McCall	Bennettsville	Pea Meal	....	....	....	....	....	....	3.68	4.47	....	13 41

PHOSPHATE DEPARTMENT.

The usual annual inspection of the Phosphate territory of the State was made this year by Mr. J. N. Lipscomb, Mr. D. P. Duncan and Mr. A. S. J. Perry, representing the Board, with the Commissioner and Special Assistant, from the 21st to 25th of April. The steamer Pilot Boy was chartered for the purpose. At the date of the inspection the following parties, with the working force given, were at work in the streams mentioned: D. W. Ebaugh, General Rights License, with twelve flats in Ashley River; J. B. Tideman, General Rights License, with twenty flats in Wando River; Willis Wilkinson, General Rights License, with thirty-six flats in Stono River; Oak Point Mines, Exclusive Rights License, with one large dredge and sixty flats in Bull River; Joseph G. Taylor, General Rights License, in Parrott Creek, with a small dredge; David Roberts, General Rights License, in Morgan River, steam dredge; J. D. and Julian Seabrook, General Rights License, in Jenkins Creek, with small dredge operated by horse power; Coosaw Mining Company, Exclusive Rights License, Coosaw River, three large dredges and twenty-five flats; Sea Island Chemical Company, General Rights License, Beaufort River, with two large dredges and a new Clyde dredge that had just been brought over from Scotland by Hume Brothers, who also held General Rights License to mine in Beaufort River; Wm. M. Farr, General Rights License in Beaufort River, with twenty flats; Wm. T. Brotherhood was building an expensive and powerful dredge to be worked under the General Rights License of Rose & Pitcher. The extensive works of the Coosaw Mining Company were visited and we found that this company, the Oak Point Mines at Bull River, the Sea Island Chemical Company at Beaufort River, and Hume Brothers at Battery Creek, all have ample facilities for successfully conducting their large mining operations.

A thorough investigation of the Phosphate interest convinced the Board that some changes in the mode of operations by the companies and the form of General Rights License was desirable, and at a meeting held at Columbia on the 6th of May, after the annual inspection, the following rules for the government of Phosphate Mining were adopted:

Rule 1.—All persons, companies or firms holding phosphate licenses from the Board of Agriculture are forbidden from sub-letting the same.

Rule 2.—No persons, companies or firms shall be granted or hold general rights and exclusive rights at the same time.

Rule 3.--The Board of Agriculture will not grant license to any person, company or firm now engaged or intending to engage in the mining of land rock.

Rule 4.—All persons, companies or firms who shall apply for phosphate license shall designate the stream or portion of stream or streams in which they propose to mine, and shall not change their location without permission from the Commissioner of Agriculture.

Rule 5.—No persons, companies or firms holding licenses from the Board of Agriculture shall be allowed to traffic or barter in phosphate rock other than that mined by themselves while holding such license.

Rule 6.—In all cases where phosphate royalty is not promptly paid in the time prescribed by law, the license shall be suspended, and any mining done under the same after such suspension shall be considered and treated as illegal.

Rule 7.—Whenever suspension occurs under the foregoing rule, parties cannot resume their operations until royalty has been paid, and the same certified to the Commissioner, and his permission obtained.

Rule 8.—Each flat engaged in the work shall be conspicuously marked with the name of the person or company working it, and be numbered in regular and continuing sequence with the other flats of the person or company licensed. Each lighter and dredge shall be likewise marked and numbered in a separate series of its class.

Rule 9.—Each captain of a flat, dredge or lighter shall be furnished by the person or body corporate in whose employment he is with a certificate of said employment, giving his name and the number of the flats, lighters and dredges under his charge, also stating the particular stream, parts of a stream or streams in which he or they have been licensed to mine for the time being. This certificate, which the captain shall have with him at all times when at work, must be countersigned by the Commissioner of Agriculture or the Special Assistant.

Rule 10.—Persons and bodies corporate licensed shall report monthly to the Special Assistant the dredges, flats and lighters, with the captains thereof, and the location in which engaged, that they have at work on the first Wednesday of each month, and any increase or decrease of the number before the next monthly report.

At a meeting held July 24th, 1885, the following was adopted, to be known as Rule 11: "Whenever parties mining under license from the Board of Agriculture have commenced work on common territory, other parties shall be prohibited from working within one hundred yards of the same, or from otherwise obstructing the operations of their plant."

At the meeting of the Board on May 6th, licenses to mine phosphate rock in certain streams of the State were granted to the following parties, with the right to mine only in the streams mentioned:

James M. Crofut—Beaufort River and Brickyard Creek.

C. O. Campbell—Stono River from Wappoo Cut to upper terminus, and in Edisto River in the vicinity of Jehossee Island.

J. B. Tideman—Wando River.

Hume Bros. & Co. (limited)—Beaufort River, Brickyard Creek, Johnson River and Battery Creek.

John Hanson—Wando River.

Joseph W. Seabrook, Morgan River.

David Roberts—Morgan River.

David W. Ebaugh—Ashley River.

Sea Island Chemical Company—Beaufort River, Brickyard Creek, Johnson River and Battery Creek.

In accordance with a resolution of the Board, these licenses were dated May 1st, and to continue in force for one year.

At a meeting of the Board held at Columbia, July 24th, 1885, the following General Rights Phosphate Licenses were granted:

George Strobhart—To mine in Broad River, Coosawhatchie River, Colleton River, Boyd's River or Creek, Chechesee River, Oatabee River, Hazzard's Creek and Hazzard's Back Creek, all in the County of Beaufort.

Theo. Melchers, J. R. Easterling, R. W. Screven—To mine in all streams lying between Coosawhatchie River to Cooper River, and from Broad River to the main land, and including Broad River, all in the County of Beaufort.

Joseph G. Taylor—To mine in Parrott Creek and Morgan River.

At the same meeting, the General Rights License held by J. D. and J. Seabrook was revoked on account of non-payment of royalty, and, by direction of the Board, the Commissioner has placed the bond of J. D. and J. Seabrook in the hands of the Attorney General for suit to recover royalty due the State.

The royalties due by J. D. and J. Seabrook have since this action of the Board been paid in full.

The Phosphate interests of the State are under the immediate supervision of Mr. E. L. Roche, the Special Assistant, under the supervision and direction of the Board and Commissioner, and he has been energetic and faithful in the discharge of his official duties. His report gives in full all of the detailed information regarding this important interest, and it is submitted herewith.

While I do not endorse his recommendation in regard to limiting the production of phosphate rock, and think it questionable whether a survey of the territory at this time is practicable, his report is forwarded as presented, because his views and opinions are entitled to the consideration of the Legislature.

REPORT OF SPECIAL ASSISTANT.

DEPARTMENT OF AGRICULTURE,
STATE OF SOUTH CAROLINA,
OFFICE OF SPECIAL ASSISTANT,
CHARLESTON, S. C., October 15th, 1885.

Hon. A. P. BUTLER, *Commissioner of Agriculture, Columbia, S. C.*

SIR: I have the honor to submit the following as the Report of the duties performed by me as Special Assistant of the Department during the current year ending 30th of September, 1885:

Condition of the Phosphate Trade.

The market for rock during the past year continued exceedingly dull, and has in the last few months declined materially, and in fact is at present in an almost demoralized condition.

In my last Report I called attention to the increasing production of both land and river rock. I also referred to the action of the land companies, who, for self-protection and to preserve some uniformity in the demand and steadiness in the market, had associated themselves together to control both production and prices. I also suggested the propriety of the State, as the owner of the water deposits, taking some similar action, either independently or in connection with the owners of the land deposits, in reference to the amount to be produced from its territory, as a wise and prudent step.

Meanwhile, the production from the State's territory has continued without abatement, and has even increased. The land companies seeing this, have come to the conclusion that they were injuring themselves by maintaining their association, to which the State would neither become a party nor act on similar principles; they therefore, about 1st September, rescinded their action as to price and production, leaving every producer free to act independently. The result has been a sharp decline in the price of rock.

The quotations at present are nominal, and rock can, as a matter of fact, be bought below the actual cost of production. This must of course result in serious loss to all concerned and force many of the weaker companies to suspend operations.

I again bring the matter to your attention, for it is a grave question whether the State, as owner of the water deposits, should not take some action looking to the preservation of a healthy demand and a fair price for her rock.

Operations for the Past Year.

The total number of tons of rock sold and removed during the fiscal year ending the 31st August, 1885, is.........................171,671¾ tons.
As against for last year......................... ....151,243¼ tons.
An increase of .... 20,428½ tons.

The total amount of royalty received by the State for the fiscal year ending August 31st, 1885 is... ....$176,754.91
As against for last year................... .... 153,797.62
An increase of................................. .... 22,957.29

Of this amount companies working under exclusive rights have paid $116,495.81, and those working under general rights have paid $60,259.10. The detailed amounts are as follows:

Exclusive Rights Companies.

Coosaw Mining Comyany	$97,491 31	
Oak Point Mines Company	11,072 60	
South Carolina Phosp hateCo. (Limited.)	3,151 50	
Farmers' Phrosphate Company	4,305 40	
Palmetto Phosphate Company	475 00	—$116,495 81

General Rights Companies.

Sea Island Chemical Company	$35,184 95	
Hume Brothers & Co. (Limited.)	6,101 00	
David Roberts	9,244 00	
J. D. & Julian Seabrook	904 30	
Willis Wilkerson	1,892 45	
Tiedeman & Venning	147 00	
James M. Crofut	656 50	
David W. Ebaugh	832 30	
Joseph G. Taylor	1,700 00	
I. B. Tiedeman	507 00	
C. O. Campbell	1,331 00	
John Hanson	327 00	
Rose & Pitcher	523 60	
Wm. W. Farr	612 00	
Joseph W. Seabrook	296 00	—$ 60,259 10
Total		$176,754 91

Of this amount $510.50 was due on last year's royalty, but has been paid during the present fiscal year.

Of the rock sent to market this year there has been shipped to

Foreign ports	131,642¼	tons.
Domestic ports	40,029½	"
Total shipped	171,671¾	tons.

Survey of Phosphate Territory.

The opinion has been expressed by many familiar with the phosphate deposits owned by the State, both as practical and as scientific men, that the supply is far from inexhaustible, and that in fact the very large amount of rock mined during the past fifteen years has very seriously depleted it.

I alluded to this point in my last Report. I cannot say how well founded this opinion is, but it is a matter of grave importance to the State, not only with reference to the money value of the deposit, but also with reference to the agricultural interests of our people. If this deposit, so invaluable to the successful cultivation of our lands, is being removed from our borders, and sold to foreign nations at a low price, in such quantities as to threaten at any time in the near future its practical exhaustion, leaving the agriculturists of the State dependent upon fertilizers purchased from abroad at much higher prices to enrich the soil, then it is the manifest interest and duty of the State to her citizens, from both a money and material point of view, to take proper steps to avert the evil.

I have deemed the matter one proper to bring to your attention. I cannot, of course, say how far the opinion referred to is correct, but its great importance leads me to suggest the propriety of having a careful and thorough survey of the whole phosphate territory made by competent parties.

If the damage feared proves to be actually existing, then it will be known in time to correct it; but if not, then the grave apprehension existing in many minds on the subject will be removed, and the value of such a survey to the State for other purposes will more than compensate for the cost of making it.

Suits for Royalty Due.

The present status of these suits is as follows:

In the case of the State vs. C. O. Campbell and Otis Phillips, a judgment had been obtained as stated in the Report of last year. As therein also stated he had arranged to pay one-half of such judgment, and the remaining half was left open.

At the last session of the General Assembly, an Act was passed, approved December 24th, A. D. 1884, authorizing and directing the Solicitor of the First Circuit, in whose hands the claim had been placed for collection, upon such payment to enter satisfaction upon such judgment. This action on the part of the Legislature cancels the judgment and remits the balance, and thus ends all claim on the part of the State to any balance thereunder. I therefore report this matter as finally closed.

In the case of the Marine and River Phosphate Company, the General Assembly at its last session passed an Act, approved December 23, 1884, striking out the proviso requiring the continuance of work on the part of the company as a condition to the absolute release from the payment of the amount due for royalty. This made the release absolute, and ends all claim on the part of the State to any further recovery for royalty against this company or its sureties on its bonds. I therefore report this matter as finally closed.

In the case of W. M. Hale, the suit against the surety, W. H. Wheelock's estate, on the bond, is on the docket of the Court of Common Pleas for Berkeley County ready to be tried. As formerly reported, the case is resisted, but no trial has yet been had.

Suits Against Trespassers.

In the case of The State *vs.* The Pacific Guano Company, the decision of the Supreme Court, announced since my last Report, sustains in every particular the judgment of Judge Wallace. By these decisions the title of the State to the beds of South Wimbee, Palmer's and Horse Island Creeks is finally and definitely established. The Court has ordered the case back to the Referee to take further testimony as to the amount of rock removed from these creeks by the defendants and the value of the same, in order to fix the amount of the recovery to the State. These references are now being held and testimony taken on both sides.

The cases of The State *vs.* C. C. Pinckney, Jr., and Wm. B. Davis, in reference to the Morgan Island marshes, were argued before the Supreme Court in December last by Messrs. A. T. Smythe and A. M. Lee, Jr., for the State, and Messrs. Isaac Hayne and Wm. Elliott for the defendants. The Supreme Court subsequently announced their decision, sustaining absolutely the judgment of Judge Wallace.

This gives the State the entire territory claimed by it in the action.

From this decision of the Supreme Court the defendants have taken a writ of error to the Supreme Court of the United States. The case has been placed on the docket of that Court and awaits a hearing there.

Hume, Brothers & Co.

This firm, as stated in my last Report, obtained from Scotland a dredge similar in principle to those used on the Clyde, for the purpose of mining rock in the neighborhood of Beaufort.

The dredge was operated for several months, but did not work satisfactorily, so much so that the effort was abandoned and it was sent back to Great Britain. This firm has now no machinery employed in digging rock.

The Phosphate Mining Company. (Limited.)

This company has erected large works on Battery Creek for the purpose of drying and shipping rock. They have also constructed a dredge of great size and power for the purpose of mining rock. The principle upon which it operates is somewhat similar to that of the Clyde dredges, to wit: "Buckets attached to an endless chain." This is a novel principle, so far as its application to the mining of phosphate rock is concerned, and its practical working is watched with great interest.

The dredge has been in operation since 1st July last. The returns from the company up to 1st of September show that it had raised 2,800 tons of rock. This company is mining under a license granted to Rose & Pitcher.

Renewal of Licenses.

An examination of the Statutes on the subject satisfied the Board that all general rights licenses ran only for one year and then were renewable at the discretion of the Board. Notice was therefore given to all parties holding such licenses that they had expired, and that application must be made for renewals. This was done on the 6th May, 1885.

In this connection I would call attention to the propriety of thus limiting such licenses to so short a period as one year, and then requiring a new application before they can be renewed.

In order to secure the investment of capital to any extent in this industry, it is essential that some security as to the tenure and duration of the privilege should be allowed.

If capitalists feel that they are licensed only from year to year, and liable at the end of any year to have their privilege revoked, it will necessarily cause such uncertainty as will keep off or drive away those otherwise desirous of engaging in the industry. I would, therefore, respectfully suggest the advisability of such legislation as would extend the period and give greater security to those engaged in the business.

All of which is respectfully submitted.

E. L. ROCHE,
Special Assistant.

FISH COMMISSION.

Office Superintendent Fish and Fisheries,
Columbia, S. C., November 1, 1885.

Hon. A. P. Butler, *Commissioner Fish and Fisheries, South Carolina.*

Dear Sir: I have the honor to submit the Seventh Annual Report of the work of the Fish Commission done since November 1, 1884. Owing to a lack of funds with which to conduct the work, it has been very much curtailed the past season; so much so, that we have been able to accomplish but very little in the distribution of fish, and have done only such work as was absolutely necessary, trusting that another season would give us the necessary amount of money to do a larger work than has been done during any past one, as our information and experience has put us in a position to do, were the necessary means at hand. I shall take occasion in this Report to call your attention to some of the special branches of the work that should receive more attention, and respectfully urge that you secure an appropriation sufficient to enable me to develop the work to the fullest capacity for good.

During the Spring of 1884 I was charged with making an exhibit of fishes at the World's Exposition to be held at New Orleans, and was engaged constantly until the 1st of December in making the necessary collection, and could not, nor did I, accomplish much else during this time. From the first week in December until the 10th of January I was occupied at the Exposition in New Orleans in arranging and putting in position this exhibit, giving such of my time as was needed to assist in the arrangement of the general exhibit. (A full report of the fish exhibit will be found in the special report on the Exposition.)

On my return to Columbia from the Exposition, I was placed in the Commissioner's office to fill the place of the Secretary, owing to his absence in New Orleans, where he had been sent to assist in taking charge of the State's exhibit there.

While in this position I did little or nothing in the regular work of the Fish Commission, and was not relieved until the latter part of May. Since that time, have inspected several of the important streams of the up country, visited all the dams located on them, and have been engaged since in corresponding with dam owners, and getting up models of fish ways, information for their construction, etc.

A corps of Fish Wardens has been organized for the better enforcement of fish laws, and good citizens appointed who will report violations of the laws and assist in the conviction of guilty parties.

Distribution of Fish.

We have distributed seven thousand nine hundred and sixty German carp, and one million and a half of shad. The latter were received from the United States Fish Commission and placed in Congaree River at Columbia, and four thousand of the carp from the same source, through the kindness of Prof. Baird, the remaining number being taken from the State ponds.

Total Distribution of Fish During Seven Years.

YEAR.	California Salmon.	Landlock Salmon.	California Trout.	Shad.	German Carp.
1879	25,000			52,000	680
1880	30,000	15,000	3,500	2,230,000	
1881	157,000			820,000	2,253
1882	160,000			955,000	4,545
1883			9,700	1,375,000	8,415
1884				800,000	16,912
1885				1,500,000	7,960
Total	372,000	15,000	13,200	7,732,000	40,765

Fish Laws and Fish Ways.

The following preamble and resolutions were adopted by the Board of Agriculture at a meeting held at Columbia on the 25th day of March, 1885:

"Whereas there are complaints that the streams of this State are unlawfully obstructed, so that migratory and other fish cannot freely ascend the same; and whereas the law of the State makes it the duty of the Agricultural Department to supervise the enforcement of the Fish Laws; and whereas it is, moreover, the duty of this Board to make rules and issue instructions for the guidance and direction of the Commissioner of Agriculture as Fish Commissioner; therefore, be it

"*Resolved,* That the Fish Commissioner be, and he is hereby, directed and instructed to see that the Fish Laws of this State be fully and promptly executed and enforced.

"*Resolved, further,* That for such enforcement he employ and place in the field a fit, reliable and qualified agent, to examine and inspect the condition of said streams, and to enforce, through the Attorney General, Solicitors and Courts, all violations of the laws.

"*Resolved,* That a circular be issued urgently requesting the Solicitors, Trial Justices, the Grand Juries and the Courts to see that the law is properly enforced.

"*Resolved,* That the Circuit Judges be respectfully requested to charge the Grand Juries as to the law and duties under it."

Soon after the passage of the above resolutions, a circular was issued containing resolutions and a copy of Fish Laws of the State in full, and a copy sent to each of the officials named therein, with the request that they give the matter their attention. Copies were also sent to all parties where it was thought they would be of any use. In obedience to your instructions I procured a horse and buggy and traveled through that part of the country where most of the complaints of unlawful obstructions of the streams came from, visiting all the dams on Saluda, Ennoree, Tyger, Pacolet and branches. Inspected the same, and where they were found to be obstructed notified the parties that they would be expected to open a free passage through them, in compliance with the law by October 1st, at the same time showing them a working model of the McDonald Fish Way, and promised necessary information for constructing them, which was subsequently given, together with a working model, to all who applied. There was inspected in all forty-eight dams, and twenty-nine found to be obstructions to the passage of fish. As stated, the owners of the latter were notified by myself at the time, and subsequently through a circular letter, as follows, from your office:

DEAR SIR: I beg to enclose you copy of the Fish Laws of South Carolina and to call your attention to Section 1669 and 1670, relative to obstructions in streams. I have been directed by the Board of Agriculture, as you will see from resolutions preceding copy of Fish Laws sent you, to have the laws strictly enforced. I therefore notify you that a proper fish way must be constructed in the dam owned by you, and running across .... River, so as to admit of the free passage of fish up the said stream. The McDonald fish way is recommended by the highest authorities for this purpose. I will furnish you with model and necessary information for building this way if desired, and shall be pleased to furnish you any further assistance in my power. I trust that this matter will not be neglected. It has been referred to the County Commissioners, who are requested to see that the law is complied with.

Very respectfully,
A. P. BUTLER, Commissioner.

The circular letter given below was also sent to the Chairman of the Board of County Commissioners of the different Counties where the dams were located, asking that they take some action in the matter to see that the law was complied with in case the parties refused or failed to open a way through their dams. This was thought necessary from an opinion of the Attorney General on the subject given in 1881. (For opinion see Report 1881.)

Chairman Board of County Commissioners:

DEAR SIR: I beg to enclose you a copy of the Fish Laws of South Carolina, and to call your attention to Section 1669 and 1670, relating to obstructions in streams. You will notice that the penalty for obstructing these streams is recoverable by the County in which they exist; and this being the case, it is the duty of your Board to see that the law is enforced. The following parties have built such dams in your County:

....

....

These parties have been notified that they must erect fish ways at once, but I call your attention to the matter, so that if the law is not complied with, you can see that it is enforced.

Very respectfully,
A. P. BUTLER, Commissioner.

All the dam owners, with one or two exceptions, expressed themselves at the time of my visit as being willing to comply with the law and provide ways. Since then eleven have written for models and instructions how to build, and say they will have the ways completed in the specified time. One has provided a way of his own device (the dam being very low,) and one other has written that he has opened his dam so that fish can pass. The following is a list of dams and dam owners, the approximate height of dams and where located:

List of Dams and Dam Owners, with the Approximate Height of Dams and Where Located.

HEIGHT OF DAM.	ON WHAT RIVER LOCATED.	NAME OF COUNTY.	NAME OF OWNER OF DAM.	REMARKS.
10 feet	Saluda	Lexington	Saluda Manufacturing Co.	Fish way in dam.
4 “	Saluda	Edgefield.	J. W. Herbert.	No obstruction.
5 “	Saluda	Edgefield.	Mrs. Fannie E. Coleman	Is an obstruction.
4 “	Saluda	Abbeville	John Bozeman	Notice rec'd that dam has been opened
3½ “	Saluda	Abbeville	W. B. Wharden & Co.	Dam no obstruction as it stands.
	Saluda	Abbeville	Dr. Hart	Dam on shoal, only partly across river.
5 “	Saluda	Abbeville	J. C. Rasor*	Is an obstruction.
2 “	Saluda	Abbeville	Maddox Estate	Only partly across river.
5 “	Saluda	Abbeville	M. Erwin*.	Complete obstruction.
	Saluda	Anderson	J. W. Poor and J. M. Cox	Only partly across river.
21 “	Saluda	Anderson	Pelzer Manufacturing Co*	Complete obstruction.
14 “	Saluda	Greenville	Piedmont Manufacturing Co*.	Complete obstruction.
4 “	Saluda	Pickens	Kemp & Holland*	Complete obstruction.
7 “	South Fork Saluda	Pickens	C. A. Carson	Complete obstruction.
4 “	Middle Fork Saluda.	Greenville	Wm. Wilkins*	Complete obstruction.
7 “	Ennoree	Greenville	A. Taylor	But little necessity for fish way.
	Ennoree	Greenville	O. T. Gibbs	Dam only partly across river.
4½ “	Ennoree	Greenville	Pelham Mills*	Complete obstruction.
10 “	Ennoree	Spartanburg	N. L. Bennett	Complete obstruction.
	Ennoree	Spartanburg	Westmoreland & Leatherwood.	But little dam, no obstruction.
	Ennoree	Spartanburg	Wm. A. McClintic	But little dam, no obstruction.
3½ “	Ennoree	Spartanburg	David Yarbrough	No obstruction.

*Those whose names are marked with a star have applied for model of the McDonald Fish Way and instructions how to build, and have been supplied.

List of Dams and Dam Owners, with the Approximate Height of Dams and Where Located.—Continued.

HEIGHT OF DAM.	ON WHAT RIVER LOCATED.	NAME OF COUNTY.	NAME OF OWNER OF DAM.	REMARKS.
2 to 6 feet	Ennoree.	Laurens	Lewis Yarbrough	Fish way has been put in.
3 feet	Ennoree	Union	W. T. Graham	But slight obstruction.
5 "	Ennoree	Newberry	D. R. Phifer.	Obstruction.
5 "	Duncan Creek	Newberry	D. R. Phifer	Obstruction.
8 "	Tyger.	Spartanburg	J. D. & J. Q. McRary	Complete obstruction.
	Tyger	Spartanburg	A. Hill	No obstruction.
6 "	Tyger	Spartanburg	S. N. Nesbit & Bro*	Complete obstruction.
8 "	Middle Fork Tyger	Spartanburg	W. J. Means	Complete obstruction.
18 "	Middle Fork Tyger	Spartanburg	W. L. Morgan, Bro. & Co	Complete obstruction.
10 "	Middle Fork Tyger	Spartanburg	F. Anderson & J. C. Orland	Complete obstruction.
4½ "	Middle Fork Tyger	Spartanburg	Wheeler & Grow	Complete obstruction.
1½ "	North Fork Tyger	Spartanburg	David Anderson	No obstruction.
10 "	South Fork Tyger	Spartanburg	Frank Anderson.	Complete obstruction.
3 "	South Fork Tyger	Spartanburg	C. P. Berry	Complete obstruction.
10 "	South Fork Tyger	Spartanburg.	Green & Burgess	Complete obstruction.
6 "	South Fork Tyger	Greenville.	Mrs. Eliza Mosteller*	Complete obstruction.
5 "	Lawson Fork Pacolet	Spartanburg	J. T. H. White*	Complete obstruction.
4 "	Lawson Fork Pacolet	Spartanburg	Glendale Manufacturing Co	Partial obstruction.
12 "	Pacolet	Spartanburg	Clifton Manufacturing Co	Complete obstruction.
18 "	Pacolet	Spartanburg	Clifton Manufacturing Co	Complete obstruction.
9 "	Pacolet	Union.	Pacolet Manufacturing Co	Complete obstruction.
1 "	Pacolet	Union	John Isom	No obstruction.

*Those whose names are marked with a star have applied for model of the McDonald Fish Way and instructions how to build, and have been supplied.

List of Dams and Dam Owners, with the Approximate Height of Dams and Where Located.—Concluded.

HEIGHT OF DAM.	ON WHAT RIVER LOCATED.	NAME OF COUNTY.	NAME OF OWNER OF DAM.	REMARKS.
....	Pacolet..................	Union................	G. W. Garner......................	Partial obstruction.
6 feet......	Bush River...........	Newberry..........	Aull Bros............................	Stream of little value as fish stream.
12 "	Bush River...........	Newberry.........	Wm. Langford...................	Stream of little value as fish stream.
10 "	Bush River	Newberry...........	Taylor & Boozer.	Stream of little value as fish stream.

*Those whose names are marked with a star have applied for model of the McDonald Fish Way and instructions how to build, and have been supplied.

During the month of August one of the Fish Wardens for Edgefield County reported that the fish way in the canal dam on Savannah River "was efficient when constructed, but is not so now, nor has it been but for only a short time after it was finished, for the reason that it has been clogged with trash and raft." He concludes by saying that fish can pass up if the way is kept free from trash. On the receipt of this report, the Mayor of Augusta was notified of the condition of the way and asked to have the matter attended to at once. The following letter was received from his Secretary in reply:

AUGUSTA, GA., August 13, 1885.

A. P. BUTLER, ESQ., *Commissioner, Columbia, S. C.*

DEAR SIR: Your communication to the Mayor of 11th inst., upon the matter of the fish way in the canal dam, received this morning, and I am instructed by the Mayor to say to you that attention had been called to the subject and a man had been sent to look after the fish way. I am further instructed to say that the City Council has always endeavored to carry out your wishes in the matter, and it is still the Mayor's desire to do all in his power to conform to the agreement concerning the fish way and dam. It will afford him pleasure to carry out your wishes. The matter will be attended to at once.

Yours respectfully,
J. S. PATTERSON,
Mayor's Secretary.

In the Annual Report of the Commissioner of Fish and Fisheries of the United States for 1882, Colonel M. McDonald says:

> "It is a well established fact that the river fisheries of the Atlantic States have steadily decreased, both in value and annual production, for many years past. In some instances species that were at one time common in certain of our rivers are no longer taken. Indeed, the annual run of those fish which still continue their migrations to the rivers has undergone alarming decrease, and in many cases become too insignificant to furnish the motive or material for organized fisheries. Several causes probably have concurred in producing this decrease:
>
> "1. The capture of the greater portion of the run each year may not have left sufficient to maintain production under natural conditions.
>
> "2. The erection of dams or other obstructions in the rivers has in some cases absolutely excluded certain species from their spawning grounds, the result being eventually to exterminate the species referred to in those rivers. In all cases the existence of such obstructions has determined a decrease in the natural productiveness of the stream *pro tanto* with the diminution of the breeding and feeding area.
>
> "The remedy for the condition of things above indicated is to be found:
>
> "1. In the enactment of such legislation as will control excessive fishing and prohibit destructive methods.
>
> "2. In compensating for the insufficient natural supply by artificial propagation and planting.
>
> "3. In extending the area for breeding and feeding by overcoming natural obstructions by means of fish ways."

There is no doubt that these are the real and main causes that have operated to drain our rivers of fish, and that the remedy for the evil is to be found in those enumerated by him. To apply them has been the object and aim of the Fish Commission of this State. The work, of necessity, has been slow, though already we begin to see and feel the good effects, and it only remains for us to prosecute the work more vigorously to arrest the rapid decline and increase the production. Col. McDonald, in the same article, goes on to say:

> If the anadromous fishes only entered our rivers for the purpose of spawning, and their progeny spent no part of their life in our fresh waters, then the increase which we could determine by artificial propagation would be practically without limit. The fish-culturist, in order to maintain the supply, would only have to produce the young fry in numbers sufficient to replace losses by capture or by casualty. As regards all the anadromous species, however, which are the object of commercial fisheries, viz.: the salmon family, the shad, the herring or alewife, etc., it is necessary that the young, after hatching, should remain for some time in our fresh waters, feeding and growing; and, of course, finding the necessary food in these waters. The extent of the breeding and feeding area of any river basin is, therefore, necessarily the measure of its possible productiveness.
>
> A given area, when pressed to its maximum of production, cannot provide for more than a given number of individuals.
>
> The extension of the area of production is, therefore, the rational means by which we may determine permanent increased productiveness.
>
> Hence arises the necessity for fish ways, which are, in short, various constructions designed for the purpose of enabling different species of fish to surmount obstructions, which would be otherwise impassable to them.

The importance of opening up those rivers that we hope to restock must be apparent to all, for unless it is done we may not hope for the best results; and as it is has been made practical by recent inventions for all dams to be provided with fish ways which will in no wise injure the property, I would respectfully urge that you request the Attorney General to take such legal action in behalf of the State as will force parties owning dams to observe the law and provide without delay suitable fish ways.

Fish Wardens.

Section 591, Chapter LII, General Statutes South Carolina, provides that two or more Fish Wardens shall be appointed in each County in the State, by the Fish Commissioner, to aid in the detection and prosecution of all persons offending against the laws for the protection and preservation of fish. By authority here given the following appointments have been made:

Fish Wardens.

COUNTY.	POSTOFFICE ADDRESS.	NAME.	DATE OF ACCEPTANCE.
Abbeville			
Anderson			
Aiken	Ellenton, S .C	Bush, Charles E	June 6th, 1885.
Barnwell			
Beaufort	Bluffton, S. C	Porcher, James	June 5th, 1885.
Beaufort	Yemasee, S. C	Elliott, Wm	
Berkeley			
Charleston	Charleston, S. C	Bryan, Arthur	July 28th, 1885.
Chester	Richburg, S. C	Barber, O	June 6th, 1885.
Chester	Wilksburg, S. C	Brawley, H. C	June 10th, 1885.
Chester	Rocky Mount, S. C	Johnston, J. B	June 12th, 1885.
Chester	Chester, S. C	McAfee, S. C	June 20th, 1885.
Chesterfield	Catawba, S. C	Thompson, J. P	June 27th, 1885.
Clarendon	Summerton, S. C	McKnight, Jas. H	June 10th, 1885.
Colleton	Walterboro, S. C	Sanders, E. B.	June 11th, 1885.
Darlington	Darlington, S. C	Fountain, J. W	June 9th, 1885.
Edgefield	Poverty Hill, S. C	Towns, H. H	June 12th, 1885.
Fairfield			
Georgetown	Georgetown, S. C	Donaldson, R. J	August 24th, 1885.
Greenville			
Hampton	Hampton, S. C	Gooding, W. J.	June 5th, 1885.
Horry	Port Harrelson, S. C	Hennecy, S. J.	June 5th, 1885.
Horry	Conway, S. C	Bruton, W. H	June 6th, 1885.
Horry	Conway, S. C	Port, B. F	June 10th, 1885.

Fish Wardens.—Concluded.

COUNTY.	POSTOFFICE ADDRESS.	NAME.	DATE OF ACCEPTANCE.
Kershaw	Tiller's Ferry, S. C	Gardner, J. W	June 8th, 1885.
Lancaster			
Lexington			
Laurens	Waterloo, S. C	Coleman, F. D	June 7th, 1885.
Marion	Little Rock, S. C	McLaurin, D. W	June 8th, 1885.
Marion	Marion, S. C	Wiggins, F. M	June 13th, 1885.
Marion	Marion, S. C	Wiggins, Asay	June 28th, 1885.
Marlboro	Bennettsville, S. C	Bolton, J. F	June 8th, 1885.
Newberry			
Oconee	Walhalla, S. C	Mickler, J. C	June 4th, 1885.
Oconee	Seneca City, S. C	Stribling, S. Y	June 4th, 1885.
Orangeburg	Vance's Ferry, S. C	Harley, J. P	June 13th, 1885.
Pickens	Six Mile, S. C	Power, James T	August 14th, 1885.
Pickens	High Falls, S. C	Craig, A. R	August 15th, 1885.
Pickens	Greenville, S. C	Franklin, Eugene	June 26th, 1885.
Richland			
Spartanburg	Gaffney City, S. C	Ross, John W., Sr	September 3d, 1885.
Spartanburg	Woodruff, S. C	Allen, Hon. E. S	September 4th, 1885.
Sumter			
Union	Skull Shoals, S. C	Walker, S. S	June 10th, 1885.
Williamsburg	Prospect, S. C	Eaddy, Z. T	September 12th, 1885.
York	Rock Hill, S. C	Avery, E. T	June 8th, 1885.

Appointments were made in nearly all of the Counties soon after the Commission was put into operation, but for many reasons but little aid was ever received from them, and this past Spring it was thought advisable to revise the list, and instead of asking Wardens to proceed directly against offenders, to make monthly reports to this office giving detailed information regarding all violations of the fish laws, and names of witnesses that could be used in Court, these reports to be put into proper shape and turned over to the officials of the State, whose duty it is to take cognizance of all offenses against the law. We have every reason to believe that those whose names appear in the above list are men who will not fail to do their duty and give us such aid as will enable us to force an observance of the laws, and gradually break up the illegal fishing that has done so much to bring about the impoverished condition of our streams. Appointments in those Counties in which no appointments have been made will be made as soon as the names of such parties as are willing and competent to perform the duties imposed can be ascertained.

German Carp.

Says the *American Field:*

"It is only a few years since less than fifty German carp were brought to this country and placed in the Government ponds at Washington. It is now estimated that there are over 200,000,000 of these fish in this country, most of which are the product of the small number originally in the Government ponds."

There has been something over 40,000 of these fish distributed by the State Fish Commission in this State, and from these South Carolina furnishes a large portion of the two hundred million estimated to be in the United States. They have been a perfect success here, and the distribution has reached every County. Each year develops a better knowledge among our people of how they should be cared for, and better ponds are being built, and more care taken of the fish. The climate, water and vegetation of our State are all that could be asked for successful carp culture, and we may expect in a short time to find it here in perfection. There is no reason why all the water courses, lakes and ponds in the State should not be made to furnish annually a large amount of the food production of the State, and that of the cheapest kind. We have only to sow the seed and abstain from wanton destruction until the harvest is ripe. The amount in actual dollars to be kept at home, and actually saved to the people, that is now sent to the West for bacon, is limited only as the water area and the supply of food it contains is limited, provided this water area is kept stocked with fish.

It is estimated that there are 26,000,000 pounds of bacon brought into the State and sold annually at ten cents per pound, which amounts to $2,600,000 taken to other markets. The most of this is coarse white bacon, and, one should think, would be readily discarded could a more palatable diet be found to take its place. How far we are able to furnish this diet, by making products of the water, by artificial plants of fish, supply the place of the bacon, we will try to show. As a basis for calculation, let us take twenty acres of ponds and see what the profit would be in dollars and cents to the State if used as propagating ponds to supply the public waters with carp.

The first cost of constructing and equipping ponds for systematic cultivation should not be over fifteen hundred dollars, and the annual cost of maintaining them fifteen hundred, including interest on amount of first investment and cost of distributing the fry. The yield per acre should be 25,000 fry or 500,000 for the twenty acres. Distribute in the public waters and in three years each fish would weigh five pounds. Allow forty per cent. for loss in handling and casualties after released, and we have 300,000 fish, weighing in the aggregate 1,500,000 pounds. Supposing that these are caught and placed on the market at two cents per pound, we have added to the food supply 1,500,000 pounds of healthful food, worth $30,000, and this at an outlay of $1,500. Supposing that five pounds of fish is equivalent to one pound of bacon, and that this amount less is brought into the State, we have saved 300,000 pounds or retained in the State $30,000 that would have gone to other markets, and this at a cost of $1,500. Further than this, we have not taken into consideration the increase that would follow the second year, for the fish planted would have spawned before being captured. This number of fish could be raised in any one of the large rivers. So when we take into consideration the immense water area of the State, we have an idea of the value of the food supply that could be derived from a source that is now almost useless. The carp being vegetable feeders would find ample food in the many sluggish ponds, lakes, creeks and rivers, that abound in a luxurious growth of aquatic plants of many different varieties. Some of the rivers are already becoming stocked with this fish that have escaped from private ponds. We have had frequent reports of their capture, and in every instance they are reported as being of fine flavor and an excellent food fish ; as this is the verdict of the people who catch and consume them, it would seem useless to contend further in lengthy arguments with the few epicures who are disposed to condemn them on the theory based on the erroneous supposition that they are scavengers of the water and mud-suckers. We have the actual proof of them being sought after and relished by the many as a happy change from white bacon. Why, therefore, contend with a few whose delicate palates can only appreciate the *salmo fontanalis* and some of the other choice varieties?

I have tried to show here that there is a wide field opened to the Fish Commission for usefulness, even though confined to this one branch of its work, and the immense profits to be derived from a small outlay of money in the development of this department of the government. I have given in outline what may be expected from a limited area, which can be increased to large proportions, and the results be made proportionately greater. Taking the least promising view possible of the result, and a distribution of carp in those streams and lakes where other voracious fishes are found in limited numbers as a food for them, and we would have a large increase of native fishes.

The present ponds which we now maintain are too small even to supply the demand for private ponds, and we are forced every year to apply to the U. S. Fish Commissioner for large numbers of fish to meet the applications made during the year. The increasing demand from all the other States and Territories of the Union has outstripped the increased supply that the Government ponds at Washington afford, and allotments to South Carolina growing proportionately smaller, so that we cannot look with certainty to this source for our future supply, nor is it proper that we should. We have had liberal allotments in the past and should be able now to supply the wants of our people at home.

I have urged this matter on your attention in previous Reports, and would not again dwell upon it at such length, but that I deem it one of vital importance. I would respectfully ask, therefore, that you bring it to the attention of your honorable Board, and urge that they make such an appropriation as will enable us to construct such ponds for the propagation of the carp as will at least give several hundred thousand fish annually for distribution in the public waters. We now have on hand ample stock fish for twenty acres, and new and capacious ponds should be constructed before another spawning season, so that we may not sacrifice the spawn of those fish, which will inevitably be done if they are kept in the small ponds where they now are.

The following letters on the subject of carp and ponds are from two of the many who have made a success of carp culture in the State:

LEESVILLE, S. C., September, 1885.

MR. C. J. HUSKE.

DEAR SIR: My carp ponds continue to give entire satisfaction. The more I see of them and their wonderful product, promising a fair return for the labor and expense bestowed on them, the more I am pleased with this new feature of domestic life. It is a pleasing sight to behold hundreds of little fishes coming to the surface of the water, and even to its very margin, in quest of their evening meal of light bread, made of middlings or coarse flour mixed with a small proportion of corn meal.

On the 20th of March, having drawn off my spawning ponds, we put twelve mirror carp, from three to four years old, in No. 1. In No. 2 we placed six scale carp, three years old. Both of these ponds are now well stocked with small fry, from three to six inches long. All the year old fish, still left after selling off a portion, were put into pond No. 3. The largest of these will be sure to spawn next Spring if placed in suitable ponds. Hence I can stock quite a number of ponds the coming Winter or early in the Spring with breeding carp, either scale or mirror, should I find purchasers for them, as I hope to do. I offer them so low ($1 each) that any one having a good pond will do infinitely better to stock it at once with these breeders than waste a whole year with small fry. Last year I sold such fish at $2 each, and the purchasers were well pleased with the wisdom of their choice. In reply to your inquiry as to what I think of the carp as a food fish, I must say I believe it will ultimately prove to be the best fish for the millions. It can be cultivated and reared in properly constructed ponds at less cost than our native fishes can be taken from mill ponds or the free waters of the State, and if caught at the right time of the year and not too young the carp is not much, if any, inferior in flavor to the best of our native species. In the Summer, when the young carp is rapidly taking on flesh, it has a somewhat muddy, pungent flavor, like the turbid water in which it finds its food. If the ponds be fully stocked with these peculiar fishes it will be kept turbid by their rooting up the bottom in search of food, from early Spring to the approach of Winter, when, if the weather becomes very cold, they will go into Winter quarters. In our waters, however, they seldom reach a torpid state, and there are occasionally warm spells in Winter when they can be caught with a hook and line, but, to not rely on such uncertainty, it is better to have a tank to put them in for Winter use. * * * Until our carp culturists learn how to construct their ponds so as to be drained to the bottom once a year and freed of the native fishes and turtles so likely to find their way into them, and do this from year to year, no great success will be the result. * * *

Yours truly,
PAUL QUATTLEBAUM.

DONALD'S, S. C., October 12, 1885.

MR. C. J. HUSKE, *Superintendent Fish and Fisheries South Carolina.*

DEAR SIR—Having had a little experience in carp culture I thought it might be of interest to you to learn something of my success. In February, 1884, I constructed a pond of about one-half acre, supplied with springs in pond, about six feet deep in deepest part but not more than one to two feet deep in greater portion of pond, with mud bottom and a large quantity of vegetable matter growing in the water, which I deem very essential to the successful culture of carp, as they seem to be vegetarians. On the 1st of May, 1884, I put into my pond two carp two years old and five one year old. In about one week the two-year-old fish spawned, and in ten days the pond was alive with young fish. On the 4th of April, 1885, I drew the pond off, and to my surprise I found hundreds of carp, both full scale and mirror, from ten to fifteen inches long, weighing from one to two and a half pounds. These were eleven months old. The parent carp weighed from seven to nine and a half pounds and measured from eighteen to twenty-five inches in length. At the time the pond was drawn, I sold about twenty-five dollars worth for stocking other ponds, and have since sold about the same amount, and have been eating them in considerable numbers. At this writing I consider my pond overstocked with large and small fish. As to their qualities as a table fish, I consider them not only equal but superior to any native varieties with which we are acquainted in the up country, cooked in the usual way, to-wit: fried in lard after having been well salted. We have never tried them cooked in any other way.

I have no other fish in my pond except carp, nor do I think there should be.

Very respectfully, J. S. McGEE.

Questions having arisen as to the construction of Sections 1678 and 1699 G. S. S. C., the following letter was addressed to the Attorney General by the Commissioner. His reply is given below:

COLUMBIA, S. C., June 15, 1885.

Hon. Ch. Richardson Miles, Attorney General, Columbia, S. C.

DEAR SIR: Does the law in regard to fishing in certain Counties in the State, referred to in Sec. 1678 G. S., include private ponds, lakes or running streams, within the boundaries of lands owned by individuals? Sec. 1699 G. S. prohibits "permanent obstructions of any kind or nature whatever in any of the inland creeks, streams or waters of the State, &c.," and provides a close time insuch streams, and prevents any kind of fishing during such close time. Does this law refer only to navigable streams or ponds built upon such streams or lakes of certain dimensions; or to all streams, lakes or ponds of whatever size on private lands?

Can this law be enforced against individuals for fishing in their own private ponds during the "close time"?

I enclose a letter from Mr. C. C. Gore, bearing upon some of the points.

Very truly yours,
A. P. BUTLER,
Commissioner of Agriculture.

EXECUTIVE DEPARTMENT,
Office of Attorney-General.
Columbia, S. C., October 20th, 1885.

Hon. A. P. Butler, *Commissioner of Agriculture, Columbia, S. C.*

Dear Sir: I have carefully considered the questions which you have submitted to me as to construction of Sections 1669 and 1678 of General Statutes. Section 1669 (the first Section of Chapter LII: "Of the Protection of Fish, Game, Sheep and other animals,") provides that "at no time during the year shall there be any permanent obstructions, of any kind or nature whatever, in any of the *inland creeks, streams or waters of the State*, to the free migration of fish, and there shall be a close time in all the *creeks, streams and inland waters* of the State, from the setting of the sun each Thursday until the rising of the same on each Tuesday, during which time all seines, nets, or any plan or device for the stoppage or collection of fish which obstructs any portion of any *creek, stream or inland waters*, other than a dam for manufacturing purposes, shall be removed from said *creek, streams or waters*, and the owners in whole or in part of such obstructions, during said period, shall be deemed guilty of a misdemeanor, punishable by fine or imprisonment, or both.

Section 1670 requires all manufacturing companies or persons erecting dams across the *inland creeks, streams or waters* of the State, which prevent the migratory fish from ascending the same, and upon failing to be liable to a fine of $5,000, recoverable by the County in which such dam may be erected.

These Sections incorporate the several provisions of "*An Act for the Better Protection of Migratory Fish,*" 14th February, 1870, (14 S. L., 338,) and of the several Acts amending the same, viz.: 9th March, 1871, (14 S. L., 660,) 13th March, 1872, (15 S. L., 190,) 22d March, 1878, (16 S. L., 539.)

The object to be effected by these laws is "the better protection of migratory fish," and a careful examination of the provisions to carry this object into effect leads me to the conclusion that the words "*in any of the inland creeks, streams or waters of the State,*" as there used, were intended to embrace, and do embrace, all creeks, streams or waters through which fish may migrate—even such as are not technically "navigable," and which may lie within the boundaries of private land. I do not think that the penalties prescribed in these Sections would be held to apply to any artificial pond made or created by any person on his own land, (the terms used in the Act of 12th March, 1872, "for the protection and preservation of useful animals," (15 S. L., 161—G. S., Sec. 1680,) or to such ponds as do not constitute a part of "the system of waters" through which fish migrate.

Section 1678 declares that "it shall not be lawful for any person in the Counties of Horry, Marion, Darlington, Clarendon, Chesterfield, Georgetown, Marlboro, Williamsburg and Richland, to fish with nets or gigs, or set traps, or shoot fish with any kind of gun, in *any* of the *fresh waters*, rivers, creeks, lakes or *other* streams in said Counties, between the first day of May and the first day of September in any year."

Section 1679 provides that any person violating the provisions of the foregoing Sections shall be deemed guilty of a misdemeanor, and upon conviction by a Court of competent jurisdiction shall be fined in a sum of twenty dollars, or be imprisoned in the County Jail for a period of thirty days.

These Sections incorporate the provisions of the "Act to prevent fishing with nets in the fresh water streams of this State at certain seasons of the year," 1st March, 1878, (16 S. L., 392,) and of the several Acts amending the same, viz.: 20th December, 1878, (16 S. L., 718,) 23d December, 1878, (16 S. L., 724,) 23d December, 1877, (17 G. S., 84,) (see also Act of 21st December, 1883, amending Section 1678 G. S., 21st December, 1883, 18 S. L., 408.)

The object to be effected by these laws is to prevent the propagation of fish at certain seasons of the year, in like manner as there are laws to prevent the destruction of deer and certain birds at certain seasons. The term used, "any of the fresh waters, rivers, creeks, lakes or other streams, are broader than those used in Section 1679, in relation to obstructing the migration of fish, and a like careful examination of the provisions to effect the object leads me to the conclusion that the terms of enumeration embrace all waters in which fish are found, whether or not in whole or in part within the boundaries of lands owned by individuals.

I am obliged to you for sending me the "Report of the Illinois State Fish Commission September, 1884," which contains the decision of the Supreme Court of that State in the case of "Parker vs. the People," in the March Term of 1883. It is an able and learned opinion, in which the question of the constitutional right of the State to legislate in relation to the protection of fish is discussed with great learning and clearly established by reason and authority. I append to this letter a few extracts from the opinion as showing fully the nature, object and extent of the legislation in relation to the protection of fish, which I think will be of general interest.

Very respectfully yours,

CH. RICHARDSON MILES,
Attorney General.

Extract from the Report of the Illinois State Fish Commission, September 30, 1884. (*See page* 14.)

"There are some things, and they are the most essential of all to man, that are incapable of individual ownership. Such are air and water. All may and do participate, without restraint, in their enjoyment. They are the common inheritance of mankind. There are other things to a large extent incapable of individual ownership, and of these are game and fish, and they belong to the entire community, collectively; and belonging to all equally, for their protection from extinction, and to preserve the common ownership in all, they are, and of necessity have ever been, subject to legislative control. If they were not, the few would, by their destruction or appropriation, deprive the balance of the community of their rights in this common inheritance. Belonging to all, common justice requires their preservation for the use and enjoyment of all. From the wild and wandering nature of fish, they are not, nor can they be, the subject of ownership in running streams, like animals and fowls, which have been domesticated. The nature of fish impels them periodically to pass up and down streams for breeding purposes, and in such streams no one, not even the owner of the soil over which the stream runs, owns the fish therein, or has the legal right to obstruct their passage up or down, for to do so would be to appropriate what belongs to all his own individual use, which would be contrary to common right; and all having a common and equal ownership, nothing short of legislative power can regulate and control the enjoyment of this common ownership. This must be so from absolute necessity. There is not, nor can there be, any other means of protecting each individual in the enjoyment of the rights his joint ownership confers; hence the necessity of legislative action to preserve and protect the rights of each and all in their common inheritance. Therefore, the power of the Legislature to act must be admitted.

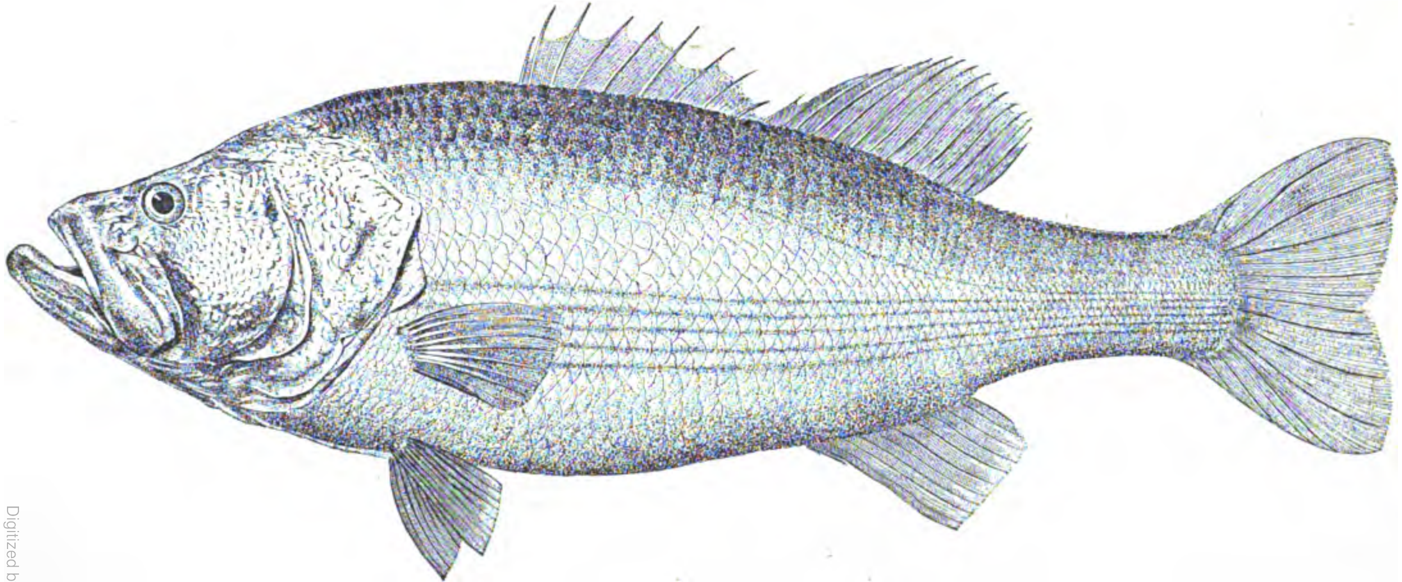
"The common law has always recognized the right of the riparian owner to take fish in the waters running over his soil and appropriate them to his own use; but the fish being the common property of the people, such owner has never had the right to obstruct their passage from that portion of the river which flows over his land, nor has he the right to wantonly destroy the fish passing over it, and thus deprive the community of their right to and ownership in the fish; hence the manner in which, the time when, and the amount such riparian owner shall take, for the preservation of the common property, is a legislative and governmental function. Government was organized to protect the general collective rights of the governed as fully as the individual rights of each member of the body politic, and this power, as we shall see, has been exercised as a legislative function by the British Parliament almost from the time of its organization."

The two cuts accompanying this Report are from a specimen of trout and German carp shown at the New Orleans Exposition. Both were prepared by Davidson's process of ichthy-taxidermy, and were probably the largest of their kind on exhibition. The trout was captured in the Langley pond (owned by Langley Manufacturing Company) and weighed fourteen and a half pounds. The carp was from the breeding ponds of Captain A. D. Bates, of Batesburg, and weighed twelve pounds. Both specimens will be exhibited at the Charleston Exposition, and subsequently placed on permanent exhibit at the Agricultural Department in Columbia.

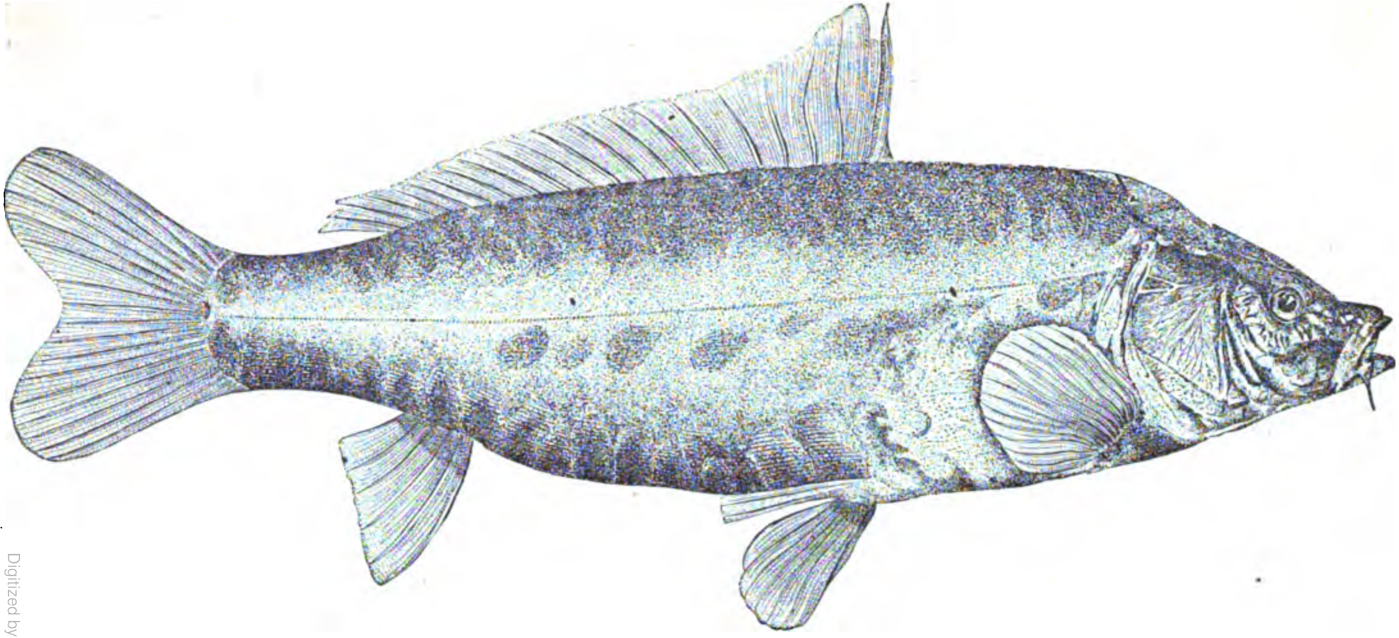
A list of the distribution of German carp for the year and financial statement is hereto appended.

Respectfully submitted.

C. J. HUSKE,
Superintendent Fish and Fisheries.



TROUT EXHIBITED AT WORLD'S COTTON CENTENNIAL EXPOSITION, 1885.
From Langley Pond, Aiken County, S. C.. Weight 14½ Pounds.



GERMAN CARP—CYPRINUS CARPIO CORIACEUS, SIVE NUDUS.

Exhibited at World's Cotton Centennial Exposition, 1885. Taken from Ponds of A. D. Bates, Batesburg, South Carolina. Weight 12 Pounds.

SOUTH CAROLINA AT THE EXPOSITION,

1884-85.

In the Annual Report of the Commissioner of Agriculture to the Legislature for the year 1883, an appropriation of $10,000 was recommended for the purpose of having the resources and products of South Carolina properly displayed at the World's Industrial and Cotton Centennial Exposition at New Orleans, Louisiana. The recommendation was approved, and the sum suggested appropriated, to be disbursed under the direction of the Department of Agriculture.

As soon thereafter as practicable, arrangements were begun for executing the instructions of the Legislature; and a report upon the result of the work of the Department is now submitted.

The World's Industrial and Cotton Centennial Exposition was inaugurated by the National Cotton Planters' Association of America, an institution numbering among its members citizens of perhaps every State in the Union. The Exposition was chartered by Act of Congress, and was held under the joint auspices of the United States, the National Cotton Planters' Association, and the city of New Orleans. The opening ceremonies took place December 16, 1884, in the presence of over forty thousand visitors from all parts of the world, and continued until June 1, 1885.

The Congress of the United States appropriated in aid of the Exposition $1,365,000, and $300,000 for the exhibit of the various governmental departments. The State of Louisiana appropriated $100,000, the city of New Orleans $100,000, and the citizens of New Orleans contributed $500,000. Every State and Territory in the Union, with the exception of Utah, was represented by an exhibition of their resources. Many of the States and Territories appropriated sums ranging from $5,000 to $30,000 for defraying the cost of their exhibits.

The following foreign countries were represented: Austria, Hungary, Brazil, China, France, Great Britain, British Honduras and the Republic of Honduras, Jamaica, Mexico, Sandwich Islands, Siam, Venezuela, Belgium, Costa Rica, Guatemala, San Salvador, Germany, Spain, Italy, Japan and Russia.

The buildings were the largest ever erected in the world for a similar purpose. They covered 2,726,305 square feet of space, and $989,211.17 was expended in their construction. The Exposition in every respect was conducted on a most magnificent scale, and it was universally admitted that there was never before such a collection of the resources of a country as was displayed in the Government buildings, which were occupied exclusively, with the exception of the galleries, which were used for the exhibits of the women's and colored people's departments, by the National Government and the States and Territories.

We think the foregoing general information necessary. It shows the grandeur and the national and international character of this the first World's Exposition ever held in the South.

On the 25th of January, 1884, the Board of Agriculture met in Columbia to devise means for having the resources of the State exhibited at the Exposition, and, after a full discussion of the matter, adopted a resolution directing the Commissioner of Agriculture to communicate with the Boards of Trade, and officials of the cities and towns, with the railroad authorities, the newspapers, the Agricultural Societies, and the Granges, successful agriculturists, manufacturers and miners, and such other persons as he thought proper, and solicit their assistance and their contributions in making a creditable exhibition. Correspondence was opened with all the parties named, and with patriotic citizens in all parts of the State.

On April 29th, the Board held another meeting, and the Commissioner reported progress, and a Committee, consisting of the Governor, Mr. Lipscomb, and Mr. Duncan, was authorized to employ a competent person to collect and arrange mineral specimens, in connection with the State Chemist. The Committee subsequently selected Mr. Arthur R. Guerard, of Charleston, to discharge this duty. The work was then organized, with the following force:

Mr. H. W. Ravenel, of Aiken, was assigned to the Botanical Department; Mr. R. M. Sims, of Columbia, to the Horticultural; Mr. Arthnr R. Guerard, of Charleston, the Mineral; Dr. G. E. Manigault, of Charleston, the Department of Natural History; Mr. C. J. Huske, Superintendent of Fisheries, the collection of Fish.

Mr. E. L. Roche, the Special Assistant of the Department, visited the various Counties and urged upon the people the importance of organized efforts for the promotion of the State's exhibit. The collection of agricultural specimens was undertaken by the Commissioner.

Assistants were appointed in every Township, and in many of the Counties active associations were formed by these assistants. These associations, and the members individually, rendered invaluable aid, especially in the agricultural division. Mr. Guerard appointed as special assistants in the mineral department Mr. J. B. Heyward, of Spartanburg: Mr. H. W. Kuhtman, of Oconee; Prof. Wm. Hood, of Abbeville; Mr. A. C. Garlington, of Laurens, and Mr. C. H. Green, of Chester.

The manufacturers of fertilizers and the phosphate miners of Charleston, Beaufort and Port Royal held a meeting, at the request of Mr. E. L. Roche, and subscribed towards the expense of making the exhibit in the phosphate department. The following companies contributed:

The Charleston Phosphate Miners' Exchange	$500 00
The Charleston Fertilizer and Acid Association	437 50
The Coosaw Mining Co	50 00
The Sea Island Chemical Co	50 00

Special reports on the collection and preparation of specimens in the different departments will be found in this Report.

The agricultural specimens were, with few exceptions, voluntarily contributed by the patriotic citizens of South Carolina, who felt a just pride in having their State properly represented.

The first shipment was made December 1st, 1884, and others followed soon thereafter. Sixteen car loads in all were sent to New Orleans. On each car a sign was attached, showing that it contained South Carolina's exhibit, and as the train passed through the country it attracted much attention. The Special Assistant, Mr. E. L. Roche; the Superintendent of Fisheries, Mr. C. J. Huske; Mr. Arthur R. Guerard, Dr. G. E. Manigault, Mr. A. W. Hamiter, and the two builders, Mr. Michael Powers and Mr. Doyle, went in advance to superintend the unloading of the exhibit, and the Commissioner went on as soon as the cars were received.

The unloading and building was done under the most adverse circumstances. The weather was very unfavorable, and the arrangements by the Exposition management very imperfect. Every effort was made by our force to facilitate the work, but only a small part of it had been completed at the date of the opening of the Exposition, December 15. After the rush incidental upon the opening was over, work became more systematic, and by the 1st of February our exhibit was fully in position. It occupied eleven thousand square feet of space, and was divided into departments, as follows: the Agricultural Products, the Minerals, the Birds and Animals, Fish, the Manufactured Products and the Woods.

Agriculture being the largest industry of our people, a greater space was given to this department than to any of the others. The illustrations in this Report is a very good representation of this exhibit. It consisted of a pagoda, forty-eight feet high from the base to the summit. The roof, which was thatched with sheaf wheat and oats, was supported by pillars decorated with grain—corn, wheat, oats, rye, barley, rice—and grasses. The fruits, apples, peaches, pears, grapes, cherries, plums, apricots, &c., were exhibited in handsome museum jars, and preserved in alcohol, and arranged on shelves beween the pillars, as shown in the cut. This was surrounded by a solid enclosure, upon the inside and outside of which were shelves filled with sacks and jars of grain and ears of corn. On the tops of each of the pillars supporting the enclosure stalks of prolific cotton were displayed. Two pyramids on opposite sides of the enclosure were filled with domestic wines, jellies, preserves, and mineral waters. Just outside of the enclosure to the agricultural exhibit proper, and between it and the mineral exhibit, was a handsome display of South Carolina rice, planned by Mr. J. L. Sheppard, of Charleston, and arranged and constructed by Mr. J. C. Dillingham, of Charleston. It consisted of a beautiful pyramid, the roof of which was thatched with sheaf rice, supported by glass pillars, filled in alternate sections with gold and white seed rice; between the pillars was a huge sheaf of golden rice, which was, without doubt, the richest grain exhibited at the Exposition. This was given by Mr. Ralph Nesbitt and Mr. J. W. Roque, of Georgetown. The base was surrounded by commercial packages, barrels and sacks, containing rice ready for shipment, branded with the names of the dealers, Sheppard and Porcher, H. Bischoff & Co., and Dan Talmadge's Sons. These were surrounded by glass-headed barrels, showing all the grades of rice, from the "Carolina Small" to the "Carolina Head Rice," the finest in the world, and the products of rice, flour, polish and chaff. It was very complete, making it an exhibit from the field to the market, agricultural and commercial. It was greatly admired. (See illustration.) On either side of the rice exhibit were piles of bales of hay and sea island and upland cotton. Near the cotton exhibit was a very handsome painting of the sea island cotton plant, in fruit and flower, the work of Miss Helen Murdoch, of Charleston. A frame, with glass front, contained samples of sea island cotton, in the seed and lint. The exhibit of long staple cotton was prepared by Mr. J. S. Murdoch. This completed the agricultural exhibit, which occupied about four thousand square feet of space.

In the centre of the South Carolina space, an immense pyramid of phosphates, containing about thirty tons of rock, was constructed. The upper portion was built of small nodules, two sides of river rock and two sides of land rock, the two colors, dark and light, contrasting beautifully. The base of this exhibit was surrounded by huge boulders of rock, one of which weighed nearly three thousand pounds. Above these boulders, and between them and the smaller nodules, sacks were placed, representing the different brands of commercial fertilizers manufactured by the South Carolina companies. On shelves above the sacks handsome glass jars were placed, containing samples of the various kinds of fertilizers manufactured, and the ingredients used in their manufacture. On the four corners of the pyramid large glass jars were exhibited, filled with ground rock. On the sides natural sections, showing the occurrence, depth and strata of rock, and a large block of marl, were exhibited.

Shields, showing the following statistics of mining and manufacturing, were built into the sides of the pyramid: "Total value of rock mined per annum, $2,500,000." "Total value of fertilizers manufactured per annum, $3,000,000." "Total amount of phosphates mined per annum, 400,000 tons." "Total amount of fertilizers manufactured per annum, 155,000 tons."

No exhibit at the Exposition attracted more attention than this. The great agricultural and commercial value of the phosphate rock made it of interest to the farmers and the commercial men, and its novelty attracted the attention of the visitors in search of curiosities and the scientist. The illustration in this Report conveys a correct idea of its appearance. Next to this pyramid were eight large glass cases, twenty feet long by four feet wide, containing the collection of fossils found in the South Carolina phosphate deposits, and loaned to the State for exhibition by Major E. Willis and Captain C. A. Scanlan of Charleston; and mineral specimens collected by Mr. A. R. Guerard; also a collection of Indian relics lent by Dr. Babcock of Chester. This collection comprised between five and six hundred picked specimens out of some two thousand or more collected in Chester County from the remains of the Catawba Indians, and were much admired by archæologists and others for their beauty and symmetry.

A table, running from the aisle next to the phosphate pyramid to the department of manufacture, was filled with gold, silver, copper and iron ores, granite, building stones and kaolin, from different localities in the State. The kaolins deserve special mention. The specimens were contributed by R. McNamee & Co. of Bath, Aiken County; Colonel T. J. Davies of Beech Island, Aiken County; and Mr. L. M. Cook of Graniteville, Aiken County. They were pronounced of the finest quality found anywhere in the world by experts who examined them. On either side of this table, across the aisles, two large upright glass cases, ten feet high, sixteen feet long and six feet deep, were placed. These contained the extensive exhibit of birds and animals from the Charleston Museum, arranged and exhibited by Dr. G. E. Manigault, the Curator, and the exhibit of fish made by Mr. C. J. Huske, the Superintendent of Fisheries. These exhibits were not surpassed by any similar ones at the Exposition, and were far superior, especially in the preparation of the specimens, to many of the States, and only equaled by the collections of the National Government. Both of these exhibits are illustrated in this Report, and both fully described by the gentlemen who were in charge of them. Next to these exhibits came the manufactured products. The centre of this department was a large pyramid, built of rolls of bagging, exhibited by the Charleston Bagging Factory. This was surrounded by thirteen large show cases, containing cotton goods—sheetings, shirtings and drills, hosiery and silk, manufactured by the various factories in South Carolina, and a collection of the products of the Greenville Coach Factory. This exhibit is also illustrated in this Report.

The next and last division was the woods of the State. These specimens were so arranged as to show the bark, and the polished and rough surfaces. The collection contained four hundred and twenty-five species, and comprised about one hundred and forty varieties. The illustration of this exhibit, given in this Report, is not a satisfactory one, as it shows little more than one-third of the collection. A description of this exhibit will be found in the report submitted by Mr. H. W. Ravenel. The reception room and office were in the extreme end of the space. A register was placed here, and all visitors requested to record their names and headquarters while in the city.

In the beginning of the work an appeal was made to the newspapers of the State, the railroads and the people for assistance, and the responses were prompt and favorable. The railroads, without an exception, agreed, and did transport all articles free to Columbia, intended for the Exposition, and the South Carolina Railroad, through the efforts of Col. S. B. Pickens, carried the entire exhibit from Columbia and Charleston to New Orleans without charge. This liberality cannot be too highly praised. It not only showed an appreciation of the importance of the exhibit, but an earnest desire to advance the material interests of South Carolina. The newspapers advertised the Exposition thoroughly, and responded to every call made upon them. The people, as they always do, where the interests of their State are involved, came forward and aided the Department of Agriculture in every conceivable way. To name each one who contributed to the success of the enterprise would require twice the space occupied by this entire Report, and we can only mention their collective efforts, and thank them all for their encouragement and active assistance, without which we would never have hoped to succeed.

During the Joint Summer Meeting of the State Agricultural Society and State Grange, at Greenville, in July, 1883, the citizens were called together to consider the matter of the State's exhibit, and devise ways for making the collection of our productions.

Governor Thompson, Chairman of the Board of Agriculture, presided, and delivered an address. Col. J. N. Lipscomb and Col. D. P. Duncan were also present, and addressed the people. Gentlemen were present from all parts of the State, and the matter was fully and thoroughly discussed. Every one left the meeting fully impressed with the importance of the exhibit, and all returned home and went to work for it.

The Exposition closed on the 1st of June, and the exhibit was, by order of the Board, reshipped to Charleston, to be exhibited there in November, by the South Carolina Agricultural Society, and then returned to Columbia, to be placed in the Agricultural Department for permanent exhibition.

Our State, on account of the distance from New Orleans, and the season at which the Exposition was held, could not enter many articles for competition in the various departments for which premiums were offered. The only articles entered for competition were sea island cotton and rice, and South Carolina was awarded the first premium on both of these.

We were prepared at all times to enter our State collective exhibit for competition, but no premiums were offered State exhibits, and we could not of course have it passed upon by a Committee. Other States, perhaps, represented their resources as creditably as ours was done, but we believed that none surpassed, if any equalled, South Carolina's display, because of the great variety and value of our products, and desired, therefore, that it should be examined, and an award made. As it was not done, we can only say that all of our people who visited the Exposition, and strangers who critically examined the exhibit, invariably pronounced it superior to many and fully equal to any.

The results to follow from the exhibit can, of course, only be predicted, for it may be some years yet before they are realized.

Over one million of people visited the Exposition. Among them were many capitalists looking for investments, and thousands of persons seeking homes. To a great majority of them the South was a new country, its resources and advantages almost unknown.

They saw before them evidences of great natural wealth and industrial activity, and were most favorably impressed. They left with a full knowledge of the unlimited resources of this section and its undoubted advantages over all other sections of the Union. They were, for the most part, business men and thrifty, progressive farmers, and were men of keen perception. The impressions made upon them will be lasting, and that the result will be the rapid development of the South will hardly be questioned.

The extent and variety of the exhibit was surprising to those who had never investigated the resources of the State, and was a revelation to many who had always believed that its lands were only adapted to the culture of cotton.

The men who visited the Exposition in search of information (and there were many such) found it in the most attractive form in these exhibits. The fleecy cotton, the golden grain, the beautiful woods and the tempting fruit all spoke more eloquently and satisfactorily than all the speeches that could have been made and all the documents that could have been distributed in years. The ocular proof was there, and words were almost unnecessary. The prospective benefits will exceed all expectations, and can be confidently predicted.

Like all the Southern States, South Carolina wants and needs foreign capital and immigration. She offers natural inducements enough to get these, but they needed advertising, and the Exposition offered her the opportunity she wanted to acquaint the world with her advantages. She availed herself of it, and awaits with "calm confidence" the result of her work that she knows is certain to come.

The good already accomplished, however, is enough to have justified the cost of the exhibit, and as it is the visible results, more particularly, that are desired, we will endeavor to give these briefly.

The most valuable property owned by the State is her phosphate mines. She receives a royalty of over $150,000 annually from this source, and has realized over $1,000,000 from it since the mining began. The discovery and utilization of this rock has created new industries, caused the investment of over $6,000,000 in mining and manufacturing this material, given employment to about 6,000 hands, and brought foreign vessels to our ports. It is manifestly to the interest of her people to have these mines developed, and for this reason a special exhibit was made of phosphate rock and fertilizers. This attracted the attention of many business men, and among them the Japanese Commissioner, who has since visited Charleston with a view of establishing a direct line of steamers between Japan and South Carolina, to bring over ammoniating material (fish scrap) to exchange for phosphate rock. This trade may reach considerable magnitude, as South Carolina has inexhaustible deposits of the rock, easily and cheaply mined, and Japan has all the fish scrap that can be exported.

The consumers of fertilizers in the Southwestern States were so pleased with the exhibit of these goods from the Carolina factories that they expect to use them hereafter instead of buying from more distant markets. This will largely increase the sales of the South Carolina companies in that section of the country.

The grapes exhibited from South Carolina showed so conclusively the adaptability of the soil of the State for their production, and the wine shown, manufactured from these grapes, so clearly demonstrated the profit to be made from their culture, that one of the most experienced wine growers at the Exposition visited the State in the interest of a colony of French wine producers. The introduction of such a colony would, we are satisfied, lead to splendid results, as their success, which is certain, would bring to the State a thrifty class of immigrants, who would rapidly develop its resources. The exhibition of mica sent to the State an expert who wanted large quantities of this material.

The variety and excellence of the woods attracted the attention or mill men who were seeking localities for extensive operations. The South Carolina kaolin, used in the manufacture of the toughest porcelain and the finest Sevres china, was pronounced by all who saw it the purest and best at the Exposition. It was often examined by parties interested in the manufacture of china, who expressed a determination to visit the beds with a view of utilizing this material at home. A factory for this purpose is now about completed in the State.

The agricultural products proved very pleasing to the farmers in the Northwestern States, who are anxious to find a fertile country with a more genial climate than they have in their present homes.

The manufactured products exhibited—principally cotton goods—were equal in quality to any at the Exposition, and were frequently examined by buyers, who expressed their satisfaction with the quality. That this will aid in finding new markets for these goods is easily recognized and understood.

These are specific cases coming under our observation that seem to promise immediate results. Since the exhibit was made the Commissioner has had many inquiries regarding lands, water powers, minerals, etc., and has had applications for all sorts of documents that have come from an examination by the applicants of the exhibit. The results following that part of the work may be slow but are sure.

In making the foregoing statements we have confined ourselves to bare facts. If everything said to us regarding the State was reported, every dollar that parties talked of investing, and an enumeration made of every person who expected to locate in South Carolina, it would add millions to the wealth of the State and considerably increase our population; but we are not yet aware of the promised investments nor of the influx of people, and therefore omit such statements from our Report for the present.

While I place a very high estimate upon the good the exhibit has done the State abroad, it does not compare with the good accomplished at home.

The collection of the specimens stimulated the pride of our people, aroused them to the importance of placing themselves alongside the progress of the time, caused the organization of agricultural societies, and helped to teach the people the power of organized effort. It showed them the matchless resources they possessed, and it convinced them of the fact that nowhere else in all this broad land is labor so well rewarded as here; it showed them the truth of Col. McClure's remark: "South Carolina is naturally the richest State of the whole Union, without any exception!" and it satisfied them with their homes. As a result of this, they have gone to work with a higher appreciation of their advantages than they have ever had before, and with a firm confidence in the future of their native State that nothing can ever remove.

South Carolina, as we have tried to show, was in the front rank among the Southern States, and no State will derive greater benefits from the Exposition than she will. In addition to the descriptions of our exhibit already given, full catalogues of each department were published in the special report on the State's exhibit, issued by the Department of Agriculture August 1, 1885. At our request, gentlemen thoroughly conversant with the subjects about which they have written have prepared special articles, treating of the various interests and industries of the State. These are also published in this Report, and are as follows:

Mr. J. J. Dargan, the Agricultural Resources of the State.
Dr. G. E. Manigault, the Natural History of South Carolina.
Mr. H. W. Ravenel, the Woods and Grasses of South Carolina.
Mr. A. R. Guerard, the Mineral and Phosphate Resources of South Carolina.
Col. H. P. Hammett, the Manufacturing Industries of the State.
Mr. C. J. Huske, the Fisheries of the State.
Col. R. M. Sims, the Horticulture of the State.

The following documents were distributed at the Exposition: "Hand Book of South Carolina," compiled by the Department of Agriculture; "View of South Carolina in 1884," compiled by the News and Courier; "Cotton Mills of South Carolina;" "Aiken as a Health Resort;" "Annual Reports of the Commissioner of Agriculture;" "A. Sketch of the Phosphatic Deposits and Manufacture of Commercial Fertilizers in South Carolina," prepared by Mr. A. R. Guerard; "Historical and Statistical Sketch of Charleston," published by Walker, Evans & Cogswell; and numerous smaller publications, such as Monthly Reports of the Department of Agriculture, List of Lands for Sale, &c.

Nearly all of the South Carolina newspapers were furnished by the publishers, and were kept on file for the benefit of visitors.

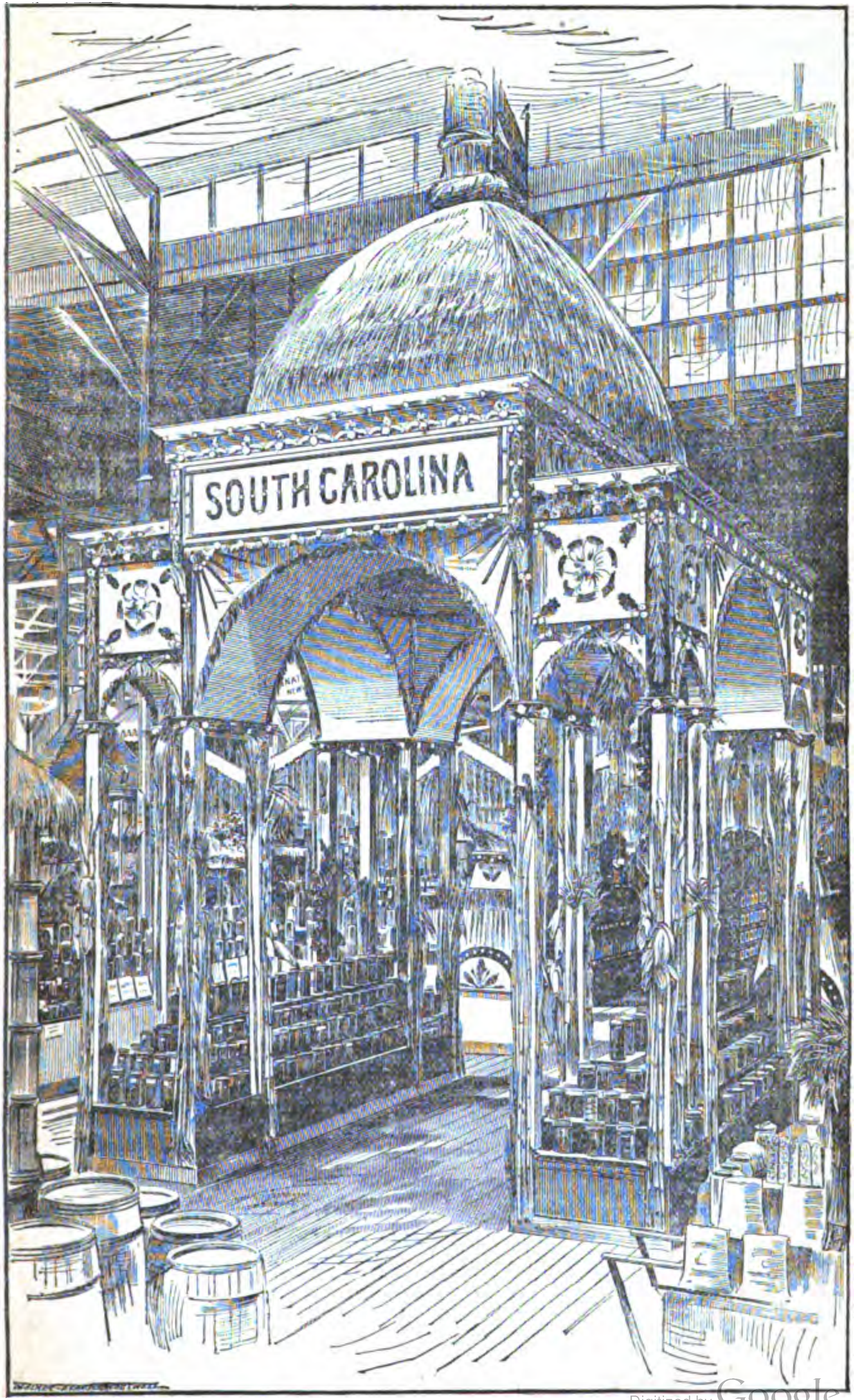
We submit this Report without further comment or explanation, and trust that what has been done will result in great good to the people of South Carolina, and will receive their commendation in the future as the efforts of the Department of Agriculture received their encouragement and assistance in the past and during the entire progress of the work.

South Carolina's Wonderful Agricultural Resources.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

In the light of South Carolina's matchless display of agricultural products at the Great World's Fair, the manner of her first settlement is quite suggestive. While the New England and Middle States were first settled by persons fleeing from political and religious persecution—who were glad to find peace any where on *terra firma*, from the vexations and cruelties they experienced in their native countries—who had neither the time, the knowledge nor the pecuniary means to make a thorough investigation and a judicious selection of a country for a home—South Carolina, with other sections of the South immediately contiguous to her borders, was deliberately chosen by wealthy and enlightened people, seeking to better their fortunes, with the whole world open before them, as "the fairest land of promise their eyes had ever rested upon."

And until the agitations commenced which grew out of our possession of that institution which made us a "peculiar people," exclusive and distrustful ourselves, and consequently hated and distrusted by others, the wisdom of the selection of this section of America, as singularly fitted by nature for man's happy habitation, was amply attested. For in spite of the fact that her line of communication with Europe was less direct than that of the Northern States, South Carolina kept pace with them up to 1800 in the increase of her population. "Her increase for that decade (1790 to 1800) was much greater than for the country at large, and there were but five States at that date making a more rapid growth than South Carolina." But with some slight variations, our relative increase of white population began, and steadily continued, to decline from this date. During the nullification period there was an enormous falling back, until we reached the next to the lowest point on the scale—Delaware only being lower. War, destruction and reconstruction ultimately resulted from our peculiar social and political situation, and we became the despised "prostrate State." No words of abuse were too strong for the supposed social and political sins of our people, and no misrepresentation of the poverty and unhealthiness of our territory was too gross and absurd to be credited. Through all the dark years since 1865 our people have waited with a calm confidence, that could exist only where there is a perfect assurance of the possession of advantages of which they could not be deprived, for the day of their deliverance and triumph over their multiplied difficulties. When they were summoned by our Agricultural Department to prepare for the exhibition at New Orleans, they felt that



South Carolina's Agricultural Exhibit at the World's Exposition, New Orleans, La., 1884-85.

the coveted opportunity had come for them to demonstrate their right to the high place on the industrial scale they had once occupied, and lay the basis for larger and grander achievements in the future than they had attained in the past.

We were resolved that the world should learn, by our conduct at this Fair, that our former exclusiveness and distrust had passed away with the institution that gave them birth, and that our gates now stand wide open to all industrious, peaceful people who would like to make their homes upon our soil. Our people from every quarter of the State aided, "without money and without price," our Agricultural Department in collecting articles for exhibition, that our resources might be seen and known of all men. Can strangers need any additional assurance of the welcome awaiting them than is here evinced? Could any language convey so clearly a cordial invitation to come and make their homes within our borders, as this effort, so zealously and generally engaged in, to place before their eyes the advantages and opportunities afforded by becoming residents of our State? Every piece of wood, every mineral ore, every agricultural product on exhibition there, spoke with more emphasis and eloquence of our open and inviting doors than even "the ready, swift and tuneful tongues" of our agents, chosen to assist in extending welcome here to all the world. We were determined to use this opportunity to scatter to the winds "all the hideous tales of woe, sadder than owl songs, or the midnight blast," that had been filling the Northern press and keeping uninformed immigrants from our borders. And right well do we think we succeeded.

Competent and unbiased judges from all quarters of the world pronounced our State exhibit second to none, and marveled at our varied products. Our own people who attended the Exposition gazed with pride, and with strengthened confidence in our grand future, upon the unmistakable evidence of our pre-eminence in natural resources. Men from North, East and West, who had read that South Carolina was a low, marshy, malarial country, where lazy white men drove ignorant negroes to make a few bales of cotton, and cotton only, which were sold for their corn and bacon, to their profit and our loss, looked with amazement as they saw, side by side with our peerless Sea Island staple and upland cotton, Indian corn of size and quality equal to their best, and in eighteen varieties. "Wheat raised in South Carolina?" they would exclaim. Yes, in twenty-seven varieties, unsurpassed by any on exhibition. We had before them the following varieties: Dallas, Tappahannock, White, Early May, Big Red, California Rust Proof, Flint, Kilpatrick-Gale, Purple Straw, McGhee and Hunter. And nine varieties of oats, including Red Rust Proof, White, Black, Winter Grazing, Bancroft and Burt's Early, besides fine sample of well developed rye and barley.

And the Gold and White Seed Rice was shown in handsome sheaves, and a special exhibit was made of rice, showing the various conditions, quality and products of the grain from the field to the market.

All of the best varieties of peas were exhibited, including the red, black, clay and speckled.

Over 600 jars of fruit were shown, including a large number of varieties of peaches, pears, apples, grapes, and smaller fruits. Oconee County furnished fifty varieties of grapes, and Lancaster eighteen varieties of pears from one orchard.

The domestic wines, manufactured from many varieties of grapes, were displayed on a pyramid under the Agricultural Pagoda.

Jellies and preserves and nuts of several varieties were exhibited in profusion.

Astounded at all this, the information-seeking stranger would then proceed to make inquiry of our agents or visitors from our State, only to have his astonishment increased when told that there could be seen on well-conducted farms in South Carolina, growing side by side with upland cotton, that would yield from 300 to 750 pounds of lint per acre, oats yielding from 20 to 180 bushels per acre, wheat from 5 to 25 bushels, rye from 5 to 20, barley from 5 to 20, and Indian corn from 10 to 50 bushels, and sugar cane and sorghum, producing 160 gallons of delicious syrup. Sweet potatoes 50 to 400 bushels, Irish potatoes 50 to 300 bushels, chufas 50 to 300 bushels, pindars or ground nuts from 50 to 300 bushels, peas from 10 to 15 bushels, (without any cultivation.) That oats can be sowed, and with profitable results nine out of every ten seasons, from 15th of August to 15th of March, provided red rust proof seed is used for Fall and Winter sowing, and Burt's Early for Spring sowing. Wheat can be sowed from 15th of October to 15th of December; rye and barley for grazing any time from August to January, the earlier the better; but for seed, about as wheat. That when the grain crop is removed, crab grass springs up spontaneously, and can be mowed and stacked or housed, sometimes as much as 2½ tons per acre, and it makes a most excellent food. That if "cow peas" grew on the land the Summer previous to the sowing of the grain, (though stock was allowed the range of the fields up to the time of planting of grain) the chances are the peas will come "voluntarily" to a stand, as soon as the grain is off, and make a fine yield of fruit, and prove invaluable as a fertilizer for the next crop, though both vines and fruit be taken off after full maturity. That sometimes cotton, and corn every season, is raised successfully on the same land, same year after the small grain crop is off. For instance, on land that yields 100 bushels of oats per acre, corn will bring after the oats the same year 30 bushels, besides 5 or 10 bushels of peas can be made in that corn. The general practice is to make a second crop after small grain; most frequently it is a pea crop, because that season (about 15th of June) is the most favorable for pea planting.

That we have fruits of innumerable varieties almost, but consisting principally of peaches, apples, pears, apricots, plums, cherries, and blackberries, whortleberries, raspberries, &c. A Northern settler in South Carolina has recently declared that as a fruit grower of long experience and observation, in different States, that section of this State (Aiken and Barnwell), in which he resides, is unparalleled in its adaptation both in soil and climate to the growth of the peach. That in all parts of the State we have lands adapted to the producing of food for stock the year round. We have for Winter pasturage, rye and barley, which, in our ordinary Winters, grow so rapidly and steadily that they furnish green food for cattle from 15th November to 15th April. Lucerne for green soiling in early Spring (say 15th April) to the Fall, and so productive as to yield on one acre in a single Summer, in Fairfield County, 41,890 pounds. It is, besides, perennial rooted; once planted, it is there forever, unless pastured. For Summer pasturage, Bermuda grass (also perennially rooted and grows most luxuriantly,) and crab grass (which grows spontaneously after corn or cotton crops,) or by simply "flushing" the land in the early Summer, if not planted the year before. Besides these, in the upper parts of the State, orchard grass and the clovers are successfully grown. Crab and Bermuda grass make most excellent hay for Winter, the latter the more nutritious; and pea vines, when well cured, are superior to both, but more difficult to be cured. Stock of every kind, horses, cows, sheep, goats, hogs, are healthy and hardy in South Carolina. And there is no better country for poultry raising, unless it be Virginia. After hearing all these statements in connection with the display before his eyes, one stranger remarked that he had often wondered how South Carolina could be so "independent" in spirit, while so dependent for the supports of life upon those who buy her one product (cotton) and sell her food. But the mystery of her marvelous independence of thought, speech and action, which she had always exhibited, was cleared up now by the exhibition of her material resources. "Her people are naturally, necessarily, independent amid such surroundings.".

We submit, therefore, that the work of our Agricultural Department for the Exposition has amply repaid the State in many ways for the time, money and pains spent. It has allowed our people the opportunity of comparing their resources with those of other States, and they have come home from New Orleans encouraged, confirmed in the belief that they can find no better land for a happy and prosperous life than here. Consequently they will go to work with increased resolution to rebuild their broken fortunes, and lift up the State to the proud pre-eminence her natural advantages entitle her to hope for. But more particularly has the

Exposition done good by teaching the world that it is as wise now as it was many hundred years ago for emigrants seeking homes to select South Carolina. Her soil gives no encouragement to indolence, for it is not naturally so fertile that crops will flourish without care and attention. But every encouragement is given to labor, skill and judgment, because these have their sure reward. In the fact that we have a Winter and a Spring season for sowing small grain crops, and then two chances for a corn crop in one season, and in the further fact that our State is remarkably free from those atmospheric conditions and insect visitations which *totally* destroy the crops they attack, rests the assurance that vigilance and labor must invariably prevent want, and most probably bring abundance. None need starve, while all may grow rich.

For more particular information in regard to the agricultural products, character of the soil, climate, &c., &c., &c., of South Carolina, I would refer the inquiring reader to the "Hand Book" of the State, issued by the State Agricultural Department, and edited by Major Harry Hammond, with conspicuous ability, accuracy and candor.

JOHN J. DARGAN.

Horticulture in South Carolina.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

South Carolina is an interesting field to the horticulturist. In shape like an irregular triangle, with its base on the seacoast, indented with bays, and bordered with a number of large and small islands, in latitude 32° North, it extends North and Northwest a hundred miles, with a gradual ascent over a sandy loam to the great falls in the rivers; thence a hundred miles further, with constantly increasing elevation over a rolling and remarkably fertile and well watered alternate clay and granite soil, to the Piedmont region proper; thence near a hundred miles Northwest, over a high Piedmont region, up to the top of the Blue Ridge Mountains, four thousand feet above the sea, and in latitude 35° 12′ North. Thus the State is naturally divided into three belts, the coast, the middle and the mountain regions. In this whole area the annual rainfall does not greatly vary from forty-eight inches, but the variations in temperature and moisture, with the changes in latitude and altitude, give the greatest diversity to climate and productions, and offer the widest range to horticultural industry. All the fruits of the Temperate Zone and many semi-tropical ones grow in this State. On the Sea

Islands, oranges, lemons, limes and bananas, and all the early Summer fruits and vegetables, grow well and mature early. The healthfulness and fertility of these islands, with an abundance of cheap labor and easy and rapid shipping facilities, make them preferable, in some respects, to Florida. In the seacoast region the temperature is comparatively high, with considerable moisture. Grapes, that have a predisposition to mildew and rot, fail, except, perhaps, on certain high lands, such as at Aiken and near the Santee. These high points are abnormal and present peculiar advantages for fruit growing. Just as the Southern slopes of the Blue Ridge Mountains, jutting far South, with a high, dry and fertile soil, and an unusually warm exposure, make it well adapted to grape growing, so these high ridges running down into the level coast region offer the finest advantages for growing early fruits—strawberries, blackberries, early peaches, grapes, pears and apples, and early vegetables and melons. This region is especially the home of the scuppernong grape, the ground nut and the sweet potato—three most valuable horticultural products. The scuppernong grape I regard as the most valuable and the most wonderful natural gift to this continent. It has never been greatly improved; great prejudice against it and general ignorance of means to utilize it profitably exist and prevent its appreciation.

In the middle region a greater variety of fruits grow and mature perfectly than in any other part of the State. In addition to the fruits and vegetables of the coast region (excepting the semi-tropical ones,) the later Winter fruits and the finer kind of grapes, plums and cherries, currants and gooseberries, do well here, as also Winter vegetables—cabbage, celery, &c. There are a number of high points on the C., C. & A. R. R., as in Edgefield, Aiken and Lexington Counties, Winnsboro, Chester and Rock Hill, well adapted to raising early peaches and grapes for the Northern markets.

The mountain region is healthful and bracing, and well adapted to growing grapes for wine and late Winter fruits for market. Here most of the fruits of the middle and coast region mature well, but not early enough to compete with more Southern points in shipping to Northern markets. Winter apples and pears grow to great perfection in the coves of the mountains. Upon the Southern and Eastern slopes the grape grows to the greatest perfection; perhaps there is no better location on the continent for wine making; the soil is as fertile and well drained as the Pacific slope, with the advantage of being well watered, and having a regular, but moderate rainfall.

R. M. SIMS,
President State Floral and Horticultural Society.

State Collection of "Woods."

By H. W. Ravenel.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

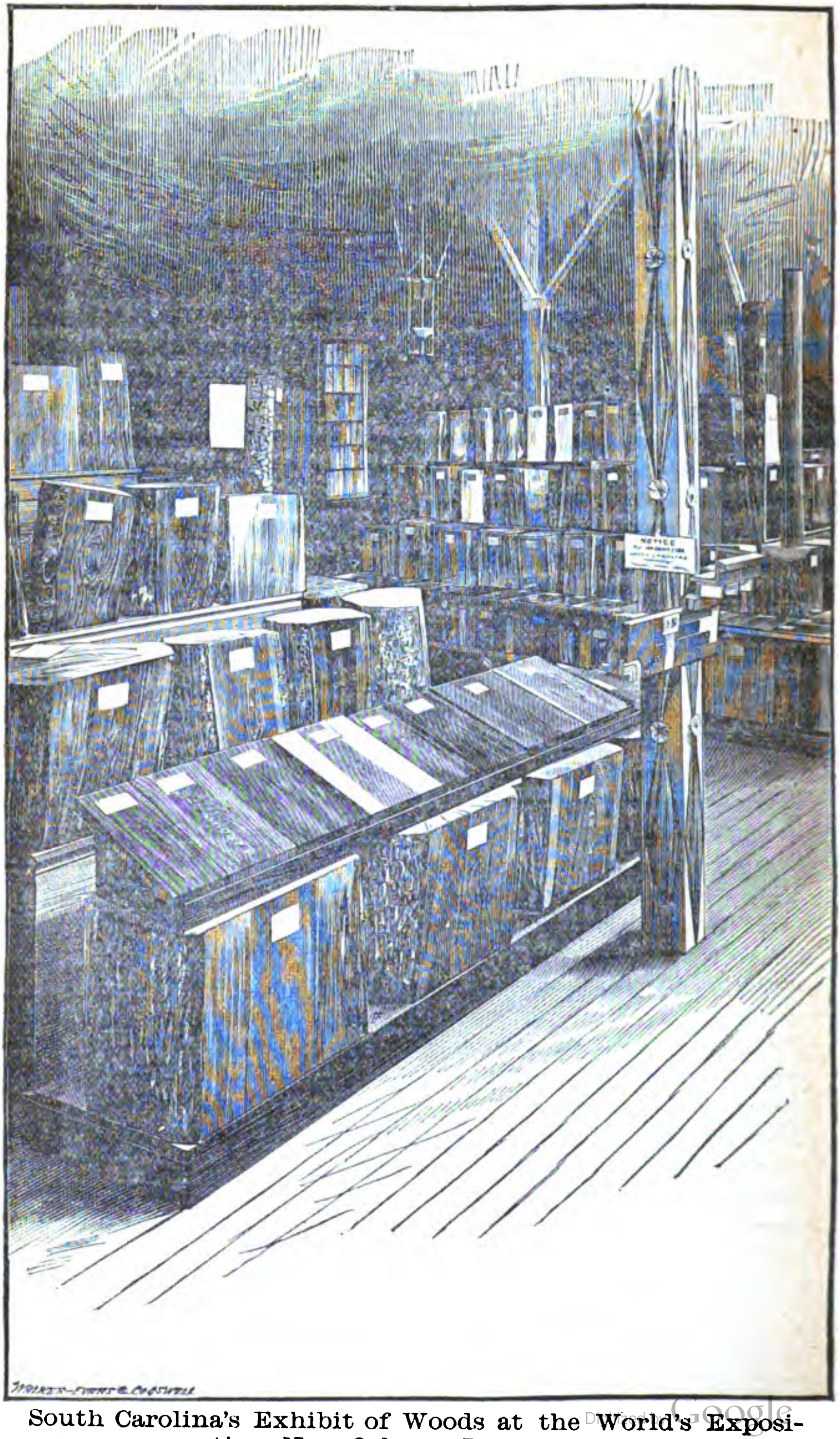
The forest regions of South Carolina may be briefly comprehended under three divisions:

1st. That of the coast region, extending up into the interior to the falls of the rivers, and embracing a width of 120 to 150 miles through the entire State. This line, which marks the limits of the tertiary formation, runs Northeast and Southwest, and, in a general way, parallel with the seacoast. The prevailing forest covering here, and characteristic of this belt, is that of the long leaf pine; but large areas of oaks, hickories and other deciduous trees, intermixed with short leaved pines, are abundant. In the vast alluvial swamps of this division, there is an abundance of the most valuable timber—cypress, white oaks, ash, hickories and gums, which, from inaccessibility or want of transportation to market, has scarcely been touched.

2d. The second division embraces the belt of country from the falls of the rivers to the foot of the mountains, containing mostly forests of oak, hickory, poplar, gums and other hard wood deciduous trees, mingled with the short leaved pines.

3d. The third division, extending into the mountains and valleys, and the Piedmont region of the Northwestern part of the State, is a continuation of the grand forest growth of the Alleghanies, rich in the number of its species, and containing magnificent specimens of individual trees.

Each of these divisions is represented in our collection of "woods," which embraces nearly every species of merchantable timber in our State: Marion, Sumter, Orangeburg, Aiken, Williamsburg, Berkeley, Hampton and Beaufort contributing from the first division; Chester, Union, Fairfield and Edgefield from the second division; and Oconee and Greenville the mountain division. Oconee is justly entitled to the prize for the largest and finest contribution. Some of the specimens are really magnificent, one of the blocks weighing about 1,500 pounds, and many others nearly equal to it. The mountain valleys and the swamps of the Pee Dee, Santee and Savannah furnish the largest specimens of individual trees.



South Carolina's Exhibit of Woods at the World's Exposition, New Orleans, La., 1884-85.

The specimens are mostly in blocks, cut two feet in length, giving a section of the trunk, with bark attached. These were all sent to the workshops of the South Carolina Railway, in Charleston, and, under the supervision of Mr. George H. Gramling, were prepared by taking off a section from one side equal to about one-fourth of the diameter, to show the grain and texture of the wood, and were then polished in the best style of the art. It excites surprise and admiration to see the beautiful graining of most of our woods, and the high polish they are capable of. Each block and plank have labels securely tacked on, giving the botanical as well as the local name of the tree, the County where collected, and the name of collector.

Considerable attention has been drawn of late in this country, and especially in the older settled States, and those of the prairie region, to the subject of Forestry—the best means of preserving or renewing the original forest growth—and their increasing value in the near future. The time has come when the old careless habit of indifference to the value of our timber lands, so common in all new countries, must give way to a more judicious system, or our supply will soon be exhausted. The Government has recognized this danger, and at the last census of 1880 provision was made for a thorough examination of our forest supply, and at the same time for a series of minute and careful tests to be applied to *all* the "woods" of the United States, with a view of ascertaining their economic value. This department was entrusted to Prof. C. S. Sargent, who was well qualified for the work, from his long connection with the Arnold Arboretum, at Cambridge, Massachusetts.

In Vol. IX of Census Reports, just published, is that portion devoted to Forestry. This volume, of nearly 600 pages, is full of valuable statistical information, to all who may feel an interest in the subject, and will be a work for reference to all lumbermen, mechanics, car builders, and other architects employed in wood work. It contains a descriptive catalogue of all the forest trees of North America, exclusive of Mexico, numbering four hundred and twelve species. Then follows the tables of the various tests applied to all these woods. The tables embrace the tests for "Specific gravity and ash"—"Fuel value"—"Strength of wood"—"Tannin value"—and "Behavior under compression."

As these tests have been made by experts, we may expect them to be careful, accurate and trustworthy—and the tables will, therefore, be always available to those who may wish to consult them for the economic value of any species of tree in the United States.

The Agricultural Grasses of the State.

BY H. W. RAVENEL.

Written for the Exposition Report of the Department of Agriculture.

South Carolina, from her peculiar topographical situation, similar to that of her two adjoining sister States, North and South, presents great variety of soil and climate—the Eastern and Southern portions resting on the sea level, the Northwestern portion running up to the mountain tops of the Blue Ridge. This diversity of soil and climate gives great diversity of vegetable life.

Along the lower belt, extending for some one hundred miles or more, from the coast to the falls of the rivers, and coinciding generally with the tertiary formation, the surface is mostly flat, with a gentle rise upwards. Here the light and sandy soils predominate, though there are large portions of it covered with swamp lands of the greatest fertility, along the course of the rivers and creeks.

From the falls of the rivers, and upwards towards the mountains, there is a rolling surface mostly of red clay, rich in mineral elements and susceptible of great improvement.

In the Piedmont region and mountain valleys there are soils specially adapted to all the rich pasture grasses and clovers of more Northern regions.

It is true that the lower belt, where the light soils prevail, is not well fitted for such grasses, but there are substitutes to be found in the more hardy perennial-rooted Bermuda and Means grass and in the Vetch and cow pea. The native grasses, and especially those thoroughly naturalized foreigners, viz, the crab and crow-foot grass and the Japan clover, are found everywhere.

In the vast alluvial swamps of the lower belt, there are thousands of acres of the richest fertility, only needing the spade and the plough to bring them into the highest state of culture, and to furnish a supply of the best hay for the needs of the whole State.

It should be borne in mind that it is not so essential that there be any great variety of grasses in cultivation at one time, except for a succession through the season, as it is that the best be selected—the most productive and the most satisfactory as ascertained by experience throughout the State. The Japan clover takes care of itself by seeding abundantly and thus extending its area, affording a very fair pasturage during the Summer months. The Vetches are also well climatized, and when once established in cultivated fields yield an annual crop of very superior hay. Of the field grasses of annual growth, crab and crow-foot thrive and yield abundant crops of hay where the soil is in good condition for their growth.

Thus it is seen that each and every section shows an aptitude for some special growth. In fact, nature is so bountiful that there is no portion of the State where, with proper skill and judgment, the farmer may not, if he please, raise his own forage, and be independent of all outside help.

The Manufacturing Industries of the State.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

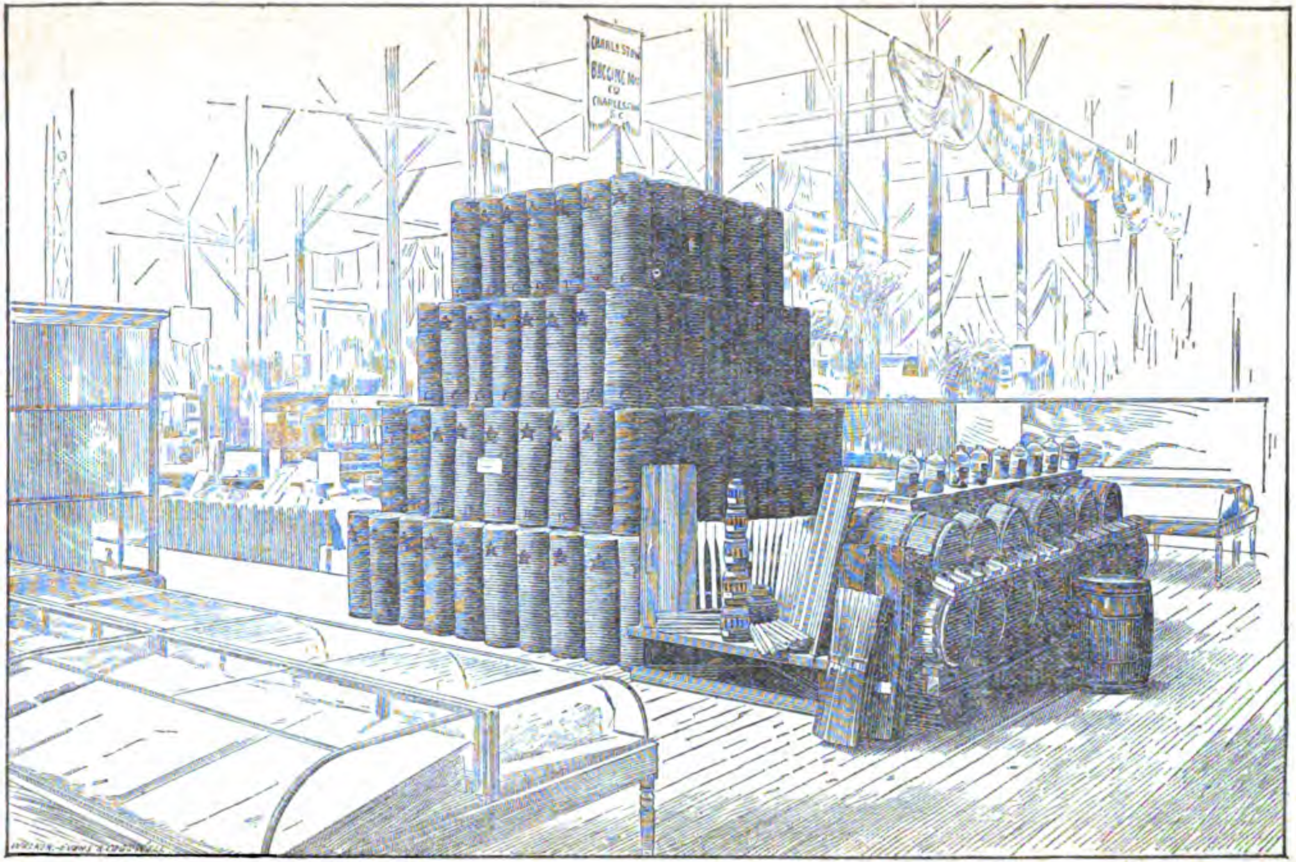
I doubt if a single South Carolinian who visited his State's exhibit at the New Orleans Exposition did not feel a just sense of pride as he examined the specimens of its resources and products; nor was there one who was not surprised at their number, variety and excellence; or that did not find specimens of each agricultural, mechanical and manufacturing products that he did not know existed, or was produced in the State.

There may have been exhibits from other States more expensively decorated, but I submit that there were none more interesting or with more varied and valuable products, or that attracted more attention solely upon their merits.

Prominent amongst the attractions were specimens of the manufacturing industries of the State, and especially of cotton goods. Nearly all the mills in the State were represented and the specimens exceptionally good, and were highly complimented by all judges of goods who examined them. None excelled, if any equalled, them from any other State.

The changed condition of our labor system since the war inaugurated a new inquiry in the South, and especially in our State, amongst enterprising citizens and capitalists, as to how their surplus capital could be most profitably employed, and the resources of the State best developed. The leading industry, from natural causes, always has been, and will always continue to be, agriculture. Labor-saving implements, and the education of the superior race in its science, and its practical application, by them, together with the experience by those engaged in it, have only commenced to be seen and felt. Great developments and prosperity will result from it; but whilst this is just as it should be, the labor and pursuits of every people, to attain the highest degree of prosperity of which they are capable, must be diversified. In our case, manufacturing industries fortunately furnish the opportunity for diversifying their pursuits to any desirable and profitable extent. Experiments in that direction have, in the main, been satisfactory to capitalists and furnished profitable employment to a large number of the people, who otherwise would have been unproductive. This is in its infancy in this State, but with proper direction is destined to assume immense proportions. The manufacturer of cotton goods finds a climate admirably adapted to the purpose, unsurpassed by any in the world, with a population willing and anxious for employment, out of which can be made as intelligent, skillful and reliable operatives as are to be found anywhere. Being in the midst of the cotton fields, in a country noted for its healthfulness, cheap living, and, as a consequence, cheap labor, together with an abundance of cheap power, are natural advantages that cannot be disputed and can never be taken from us. Although, as stated, this industry may be considered to be in its infancy, there are now in operation in this State nearly 200,000 spindles, with a consuming capacity of about 75,000 bales of cotton annually, nearly all of which is produced in the vicinity of the mills, and perhaps $800,000 in money is paid to the employees annually, and forms a part of the wealth of the State.

All sections of this great country that have grown rich and eminently prosperous have become so by the universal individual labor of the people, upon products which are sold in another section from that in which they were produced; the money received for which, being distributed amongst all those who contributed their labor in producing them, forms the material wealth of the people. It comes in no other way. Large manufacturing corporations are not indispensable to the greatest advantages to a community. Great numbers of small industries are perhaps the most profitable, because more people are individually interested in their success. There is not an inland town in all this great country, North, East, South or West, with a large population, prosperous, progressive, enterprising and growing in wealth and importance, that is not dependent in the main for its great prosperity upon its own manufacturing industries, large and small, by its own people, within its own limits. As conspicuous examples, Worcester, Mass., Richmond, Va., and Atlanta, Ga., may be mentioned. Where these do not exist, the town grows to a certain size, generally very small, measured by the retail trade of the immediate surrounding country, and there stops. The great city of Philadelphia, although not strictly an inland town, with a population nearly equal to that of the State of South Carolina, is purely a manufacturing city, with little commerce, except that which supplies the wants of the manufacturers and their operatives, and the sale of their goods. The same applies to all large cities, except those great ports that are built up and maintained by their commerce.



South Carolina's Exhibit of Manufactured Products at the World's Exposition, New Orleans, Louisiana, 1884-85.

Because cotton is our principal market product, and consequently the most convenient to get, it does not follow that nothing else can be profitably manufactured. A great variety of goods and wares can be made equally as well and as profitably, the materials for which are at our very doors. No State possesses a greater or more valuable variety of timber than ours, as the specimens at the Exposition demonstrated, out of which goods in great variety, agricultural implements and other goods, could be produced. Wool would be grown if there was any local demand for it, and so of many other materials, if our people bought and manufactured them in the State.

The present depressed condition of trade should not discourage the people. History is full of such seasons, many of them more depressing and damaging than this; they were all followed by seasons of great prosperity. So will this. While many of the manufacturing industries have not made their usual return upon their capital last year, that has not been confined to the South or to this continent, and no other investments have been prosperous; perhaps the manufacturers have suffered less than most other occupations and investments.

Space forbids more than the mere statement of the propositions here submitted. It is hoped that the enlargement upon them will readily suggest themselves to the readers.

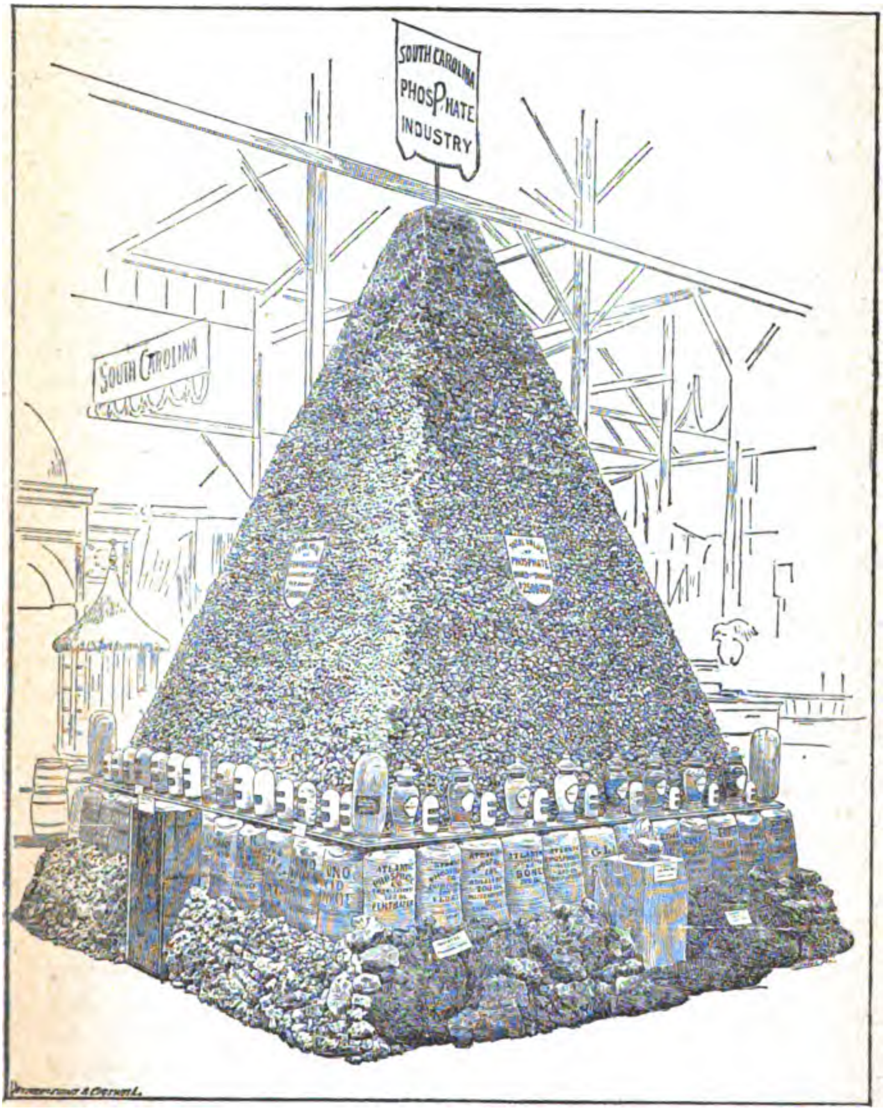
H. P. HAMMETT.

The Phosphate and Mineral Resources of the State.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

South Carolina is better known as an agricultural than as a mineral State. The explorations of geologists (Vanuxem, Tuomey and Lieber,) proved indeed years ago the existence, principally in the Piedmont region, of gold, iron, copper and lead ores, besides several other useful minerals, such as granite and kaolin; but few of these, though some have been worked from time to time, have ever been considerably developed. It was not until the discovery of the phosphates on the coast that any extensive mining operations were entered into in the State. The phosphate industry, however, has increased so enormously in the last few years that South Carolina to-day occupies no unimportant place among the mining States of the Union.

In the recent exhibit at New Orleans of the agricultural and industrial resources of the State, special prominence was given to the display of phosphates. The huge pyramid of rock and fertilizers (20 feet square at the base and 30 feet high) with the fine collection of fossils, clearly



South Carolina's Phosphate and Mineral Exhibit at the World's Exposition, New Orleans, La., 1884-85.

indicated the importance and value of the phosphate industry as a resource of wealth to the State. Comparatively little time or money was spent in making an elaborate exhibit of other minerals, the object being more to show average samples of such minerals as were being actually worked than to make a complete mineralogical collection. Samples of working ores, building stones, &c., on tables, and cabinet specimens under glass, illustrated the occurrence of these minerals in the State.

PHOSPHATES.

The phosphates of South Carolina were long known to geologists, but their commercial value was not recognized till 1867; since then immense quantities have been raised. The deposit is found in beds of rough masses or nodules, associated with fossil bones and teeth in the creeks and rivers, and on the low lands running parallel to and from ten to fifty miles from the coast. The nodules contain on analysis from 55 to 61 per cent. of tricalcic phosphate, and 5 to 11 per cent. of carbonate of lime, with some other unimportant constituents. The phosphates are used for the manufacture of artificial fertilizers, of which they form the basis, and are largely consumed at home and abroad. The phosphate industry of South Carolina has already assumed astonishing proportions, but it is nevertheless still in its infancy. There are at present in operation in the State 14 land mining companies, 11 river mining companies, and 11 fertilizer companies. There have been mined and shipped (1868–84) 2,699,000 tons of phosphate rock, equivalent to about $16,000,000; there have been manufactured (1871–84) 2,000,000 tons of fertilizers, equivalent to about $34,000,000, giving a total of $50,000,000, which has been brought into the State by the phosphate industry in the last seventeen years. Of this amount the State has received as revenue $1,200,000, which was paid as royalty, besides the heavy taxes levied on the products of the land companies and fertilizer manufacturers. The production of phosphates for 1884 was 409,000 tons of rock and 236,884 tons of fertilizers.

OTHER USEFUL MINERALS (NOT METALLIC ORES.)

Granite of excellent quality, and in workable quantity, exists in Fairfield, Newberry, Richland, Union, Spartanburg, and other Counties. Fine quarries are now in active operation at Winnsboro, Newberry and Granby.

Kaolin, or China clay, is found in abundance in Aiken and Edgefield Counties, in the former of which works were established some years ago for the manufacture of porcelain, pottery, fire-bricks, etc. They were abandoned, chiefly for want of skilled labor. The kaolin, however, is still largely mined and shipped.

Among other minerals of this class occurring in the State may be mentioned *Limestone* (York, Spartanburg, Laurens); *Barytes* (York); *Asbestos* (Oconee, Pickens, Anderson, Laurens, Abbeville); *Mica* (Anderson, Oconee); *Felspar* (Pickens, Abbeville, Anderson, Laurens); *Ocre* (Abbeville); *Soapstone* (Spartanburg, Laurens, Anderson, Pickens); *Whetstone* and *Grindstone* (Edgefield, Abbeville); *Graphite* (Spartanburg, Anderson, Greenville, Laurens); *Pyrolusite* (Abbeville, Edgefield, York, Laurens.)

METALLIC ORES.

Gold has been found in almost all of the upper Counties of the State, both in the free state in quartz, and in sulphurets. There are, however, only three gold mines of any note now in active operation, viz.: The Haile mine (Lancaster), the Brewer mine (Chesterfield), and the West mine (Union); but all these mines are doing good work. Indeed, the Haile Gold Mining Company claims to have more capital invested and to be producing more gold at present than any gold mine in the South.

Iron ores are found scattered over the surface in many parts of the State, but have been worked only in Spartanburg, Union and York Counties. The charcoal iron, made from the magnetic and hæmatite ores of this locality, was once famous in the State, but the furnaces have been long abandoned for want of fuel.

Lead ores—argentiferous galena, carbonate and phosphate of lead—are found in small quantities in Spartanburg, York and Oconee.

Copper ores—pyrites, and sulphate of copper—occur in various localities, along with the auriferous pyrites, and with the galena in Spartanburg, York and Oconee. But neither lead nor copper have been found in sufficient quantity to pay to work extensively.

RARER MINERALS.

No gems or rarer minerals of value have been as yet discovered in South Carolina. As cabinet specimens, may be mentioned: *Rock crystal, Smoky quartz, Amethyst, Chalcedony, Carnelian, Jasper, Tourmaline, Zircons, Garnets, Corundum, Ruby-Corundum, Spinel Rubies, Opal, Beryl, Pyruxene, Pyrophylite, Meteoric Iron, Bismuth* and *Casiterite.*

This account of the phosphate and mineral resources of the State has necessarily been much condensed; but being intended only as a supplementary report on the work done at the Exposition, it sufficiently serves its purpose, and calls attention to the present condition of this branch of the State's natural resources.

A. R. GUERARD, A. R. S. M.,
Mineralogist for the N. O. Exposition for the Dept. of Agricultnre,
Columbia, S. C.

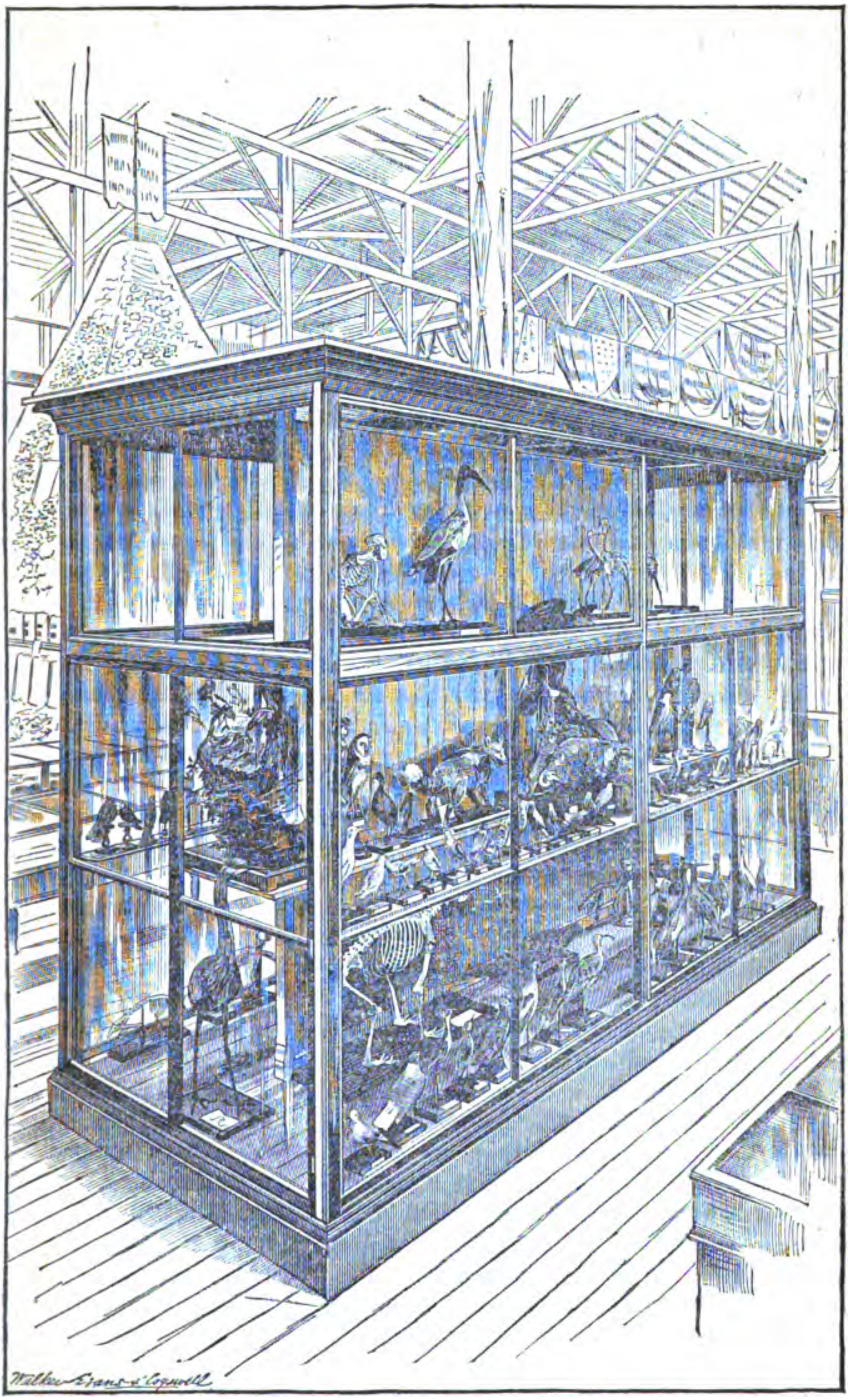
Introductory Remarks to the Collection Illustrating the Natural History of South Carolina, as Contained in the Exhibit Sent to the New Orleans Exposition by the Museum of the College of Charleston, S. C.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

CHARLESTON, S. C., June, 1885.

The collection of mammals and birds from the Museum of the College of Charleston, which formed part of the South Carolina exhibit at New Orleans, consisted of specimens, as the accompanying list will show, which partly illustrate the two first classes of the sub-kingdom of vertebrates, viz.: the class *Mammalia*, mammals, and the class *Aves*, birds. These specimens were obtained principally near Charleston, and, during the year, there are opportunities of procuring here almost all of the birds that belong to the fauna of the State, the large majority of the migratory species being in the habit of passing through this neighborhood. Among the mammals, the wild cat, red and grey foxes, mink, otter, skunk, raccoon, bear, deer, grey and marsh rabbits and opossum are still abundant. There are also several varieties of squirrels, two shrews, two moles, thirteen rats and mice, and ten bats. The grey wolf and the ermine are rare, and the puma, or panther, and the beaver, are extinct. The bear is principally confined to the swamps which border the rivers along the seaboard. It is small in size, and somewhat abundant. Those found in the upper Counties are probably stragglers from the mountains of North Carolina. The dividing line between the habitats or ranges of the two foxes appears to be through the centre of the State, and in a direction from East to West. The red fox sent to New Orleans was obtained in Edgefield County; the grey was from the neighborhood of Charleston. The aquatic mammals consist of a common seal (extremely rare), the right whale, the bottle-nose whale, and the porpoise, all of which have been caught in Charleston Harbor.

Among the birds there are over eighty species resident within the limits of the State. The two most numerous families are the warblers and sparrows. Of the former there are only three resident species, viz., the yellow-throated and pine-creeping warblers and the Maryland yellow-throat. Bachman's warbler has never been seen here since the one described by that eminent authority, and Swainson's warbler, which was thought to be on the verge of extinction, simply for the reason that, since the time of Audubon and Bachman, there has been no resident collector here during the Summer months, has lately been found in some numbers from April to September. The credit of this discovery is due



South Carolina's Exhibit of Animals, Birds, Etc., at the World's Exposition, New Orleans, La., 1884-85.

to Messrs. Wm. Brewster of Cambridge, Mass., and Arthur T. Wayne of Charleston. Of the sparrows and finches, there are eight resident species, viz., the sharp-tailed finch, seaside finch, snow bird, Bachman's finch, song sparrow, towhee bunting, Florida towhee and cardinal grosbeak or red bird.

In the family of icteridœ, to which the orioles and red-shouldered blackbird belong, one of the most interesting species is the bobolink, on account of the changes that occur in its plumage, which gave rise to some difficulty in its identification by the early American ornithologists. Upon arriving here at the end of April or early part of May, it is known on the rice plantations as the May bird, when its depredations upon the grain just sown are very great. The male is then in beautiful plumage, and very different from the female. Its nesting occurs in the Middle and Northern States, and after the Fall moulting both sexes are precisely similar in appearance. In this condition they return and are known as reed birds in the marshes of the Delaware River, and rice birds on the South Carolina rice plantations.

Another bird, which is equally interesting, is the Carolina parrakeet. It was found here by the early settlers, and the first specimen sent to Linnæus for identification was from Carolina—hence the name. It has ceased for over sixty years to belong to the fauna of the State, and the last flock was seen by Dr. Bachman, when a young man, in Salkehatchie swamp, the main feeder of the Combahee River. It is still tolerably abundant in Florida.

The lists of birds always commenced formerly with the eagles and hawks, as being the noble birds of prey, but now the thrushes have been elevated to the front rank, as displaying "the highest grade of development and the most complex organization of the class." South Carolina glories in being one of the homes of the mocking bird, a member of the thrush family. It is a curious fact concerning this bird, that when confined in a cage it sings with much more variety of note, and more numerous imitations of surrounding sounds and noises than when at liberty. There are a few birds that occasionally wander away from their regular habitats and are seen and killed in South Carolina. This is sufficient to include them among our birds with the ornithologist, although the incident may occur only once in a century. The flamingo is extremely rare in Florida, but abundant on the Bahama Isles. A specimen was shot near Georgetown, S. C., September, 1876, and sent to the undersigned. The skin, however, was not well prepared, and had to be thrown away. The yellow-headed blackbird, a Texas bird, was recently killed near Chester, S. C., by Mr. L. M. Loomis. The white pelican, dusky shearwater, spoonbill, snowy owl, grey kingbird, whistling swan, shore lark, Lapland longspur, painted longspur, sooty tern, noddy tern, and Sandwich tern, are birds that only occasionally appear within the limits of the State, but they are nevertheless included among its birds.

The preparation and mounting of the groups exhibited at New Orleans, the golden eagle and wild turkey, the rattlesnake and mocking birds, the red fox and wild mallard duck, were all done by Mr. John Dancer, a veteran taxidermist, English by birth, who has been doing the work of the Museum for about ten years. The raccoon with the squirrel was mounted by Mr. Josiah Tennent, of Charleston, who was employed at the great establishment of Prof. Ward, at Rochester, N. Y. His future was full of promise, as he exhibited great skill in the mounting of mammals, but he was suddenly removed by death, a few years ago, at the commencement of his career.

Most of the mammal skeletons were of foreign animals. They were sent to show the work done at the Museum. Of the fish skeletons sent, the *pompino* is from the Gulf of Mexico, and the three others are from Charleston Harbor.

G. E. MANIGAULT, M. D.,
Curator of Museum, College of Charleston.

Fish and Fisheries of South Carolina.

WRITTEN FOR THE EXPOSITION REPORT OF THE DEPARTMENT OF AGRICULTURE.

South Carolina is reckoned twentieth in the fish producing States, and the products of her fisheries in 1881, as taken from the United States Census, amounted to $212,482.

The greater part of the catch is taken along the coast and within the tide water section of the rivers. The most important of the migratory fishes taken are shad, rockfish, striped bass, alewives or herring, and sturgeon. These fishes enter the rivers from the ocean, as early as December, and continue to run until the 1st of April, when the catch along the coast is small and the fishing for them ceases; the shad and sturgeon, however, are taken along the rivers in the middle section of the State as late as the 1st of June, and the rockfish is found in the fresh water till Fall.

The sturgeon fishing in the Spring months has become quite an industry, and large numbers are taken in the waters of Winyaw Bay and South Edisto River. They are valuable more for the roe, which is converted into caviare, and sold at high prices in the European markets, than for the flesh, though the latter is sold to some extent among the colored population of our State, and shipped largely to the New York an

Philadelphia markets. The estimated value of the annual catch is $15,675.

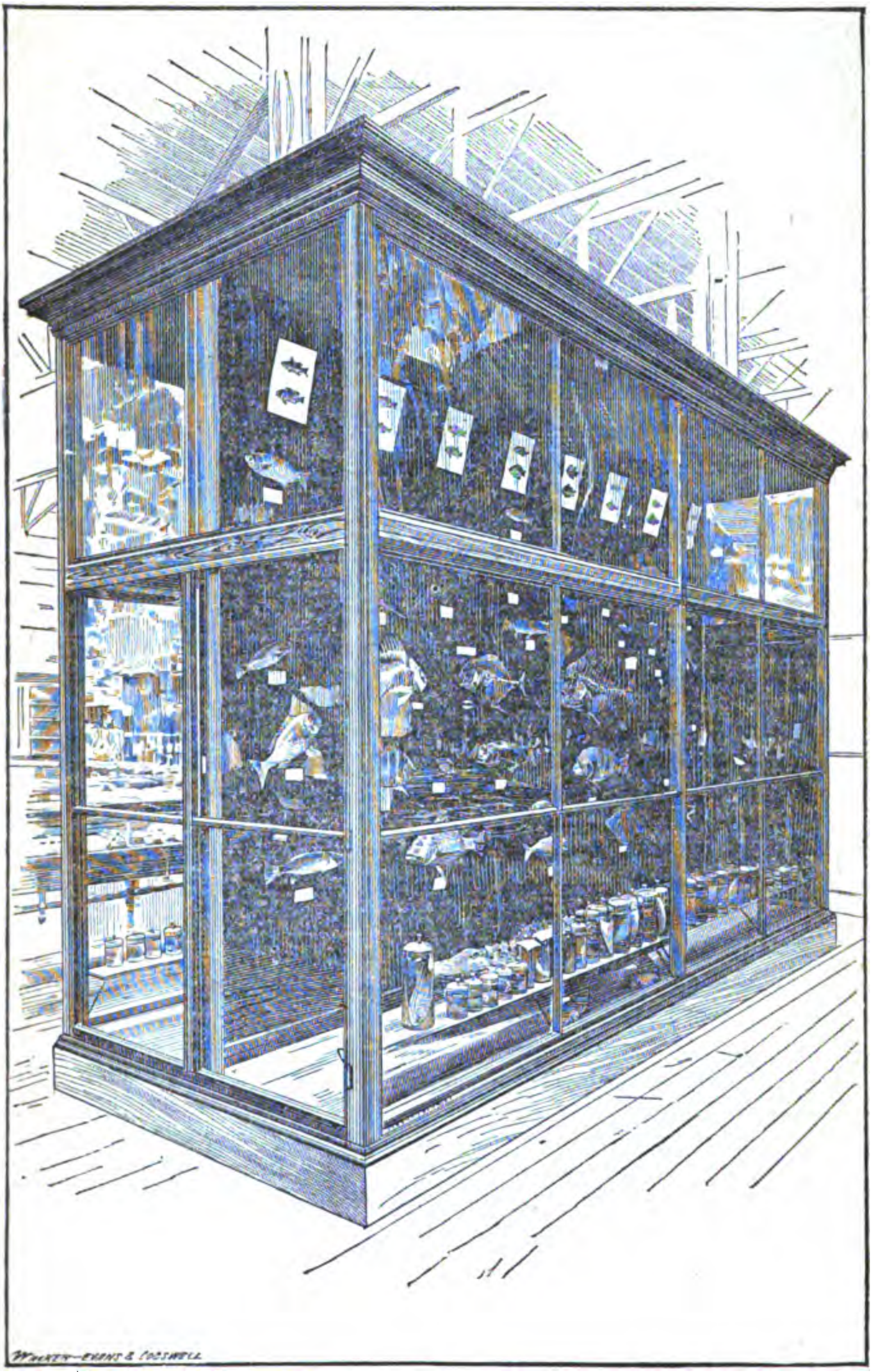
The shad run in most of the rivers of the State, and before cut off from the Piedmont region by artificial obstructions, were taken in great abundance, in traps, at every shoal along the rivers. The important fisheries now occur in tide waters and the bulk of the take is in Combahee, Edisto, Winyaw Bay, and along Waccamaw River. The fishing is done in a great measure by gill nets. On account of the early run of this fish in South Carolina, quite a number are shipped to the Northern markets and command good prices. The local demand is good, however, and they find ready sale in all the local markets. The annual catch is about 52,000, and brings at first sale, which is the value to the fishermen, $12,432.

The principal sea fishing is done about Charleston, Georgetown and Beaufort, though it is carried on to more or less extent all along the coast, but is little more than sufficient to supply the local demand, there being but few shipped beyond' the State. Among the fishes principally taken may be mentioned black drum, porgies, croakers, crevalle, flounders, groupers, grunts, sea turtle, menhaden, moon fish, pompano, red drum, sea bass, sheephead, sailor's choice, Spanish mackerel, spots, whiting and black fish. Shrimps are found in great abundance, and the take in fish is nearly as great as that in all other States combined. In 1880 it amounted to 18,000 bushels, valued at $37,000.

The oysters of the State are very fine, and are found in more or less abundance all along the coast. Some plants have been made by individuals with good results. The diamond-back terrapin is taken in considerable numbers, and shipped to Northern markets, where they command large prices. Quite a business is carried on in their capture and sale, not only among the natives, but by fishermen from other States, who find the business here remunerative.

From tide water to middle Carolina are found numerous lakes, ponds, rivers and creeks, where are found some of the choicest varieties of fresh water fishes—notably among them is the black bass, which has been taken as large as sixteen pounds, blue and copper-head bream, red-breasted perch, goggle eye or speckled perch, jack fish and sun perch. Numerous kinds of catfish and river and pond suckers are found in most of the waters of the State, and the red horse and fat backs are in more or less abundance in the upper portions of the rivers. The former is most highly prized and is considered the best river fish of the up country, though it is found in nearly all parts of the State.

The brook trout were formerly abundant in the mountain streams of Pickens and Oconee Counties, but has disappeared as the country has become more thickly settled, and are now found only in small numbers.



[illegible]—EVANS & COGSWELL

South Carolina's Exhibit of Fish at the World's Exposition, New Orleans, La., 1884-85.

CATALOGUE.

A catalogue containing a list of each specimen contributed for exhibition, the name of contributor and County, was published in the Exposition Report of the Department. It is, therefore, only necessary to republish here a summary of the catalogue.

Every County in the State was represented. In the agricultural division of the exhibit there were 60 specimens of corn, 32 specimens of cotton, 123 specimens of wheat, 98 specimens of oats, 30 specimens of rice, 16 specimens of rye, 10 specimens of barley, 96 specimens of wine, 401 specimens of fruits, 42 specimens of preserves and pickles, 109 specimens of grasses and hay, and 79 specimens of miscellaneous vegetables, such as beets, beans, peas, olives, egg plant, cushaws, onions, okra, pumpkins, pindars, nuts, &c.

The collection of woods contained 425 pieces and 123 different kinds, embracing some of the best and most valuable varieties. The manufactured products consisted of bagging, cotton goods, hosiery, silk, naval stores, shingles, wagon spokes, axe handles, &c.

The mineral exhibit contained gold, iron, copper, lead, granite, kaolin, limestone, marble, dolomite, felspar, stentile, asbestos, mica, massive corundum, barytes, ochre, oilstone, grindstone, fossil hickory, shell marl, manganese, and of the rarer minerals cabinet specimens.

Amethyst quartz crystals.
Limpid quartz.
Clustered quartz crystals.
Transparent quartz, enclosing straws.
Smoky quartz crystal.
Chalcedony.
Flint.
Carnelian.
Jasper.
Black Tourmaline.
Green Tourmaline in felspar.
Schorlomite.
Zircons.
Common garnets.
Bohemian garnet.
Crystals of corundum.
Green and blue tinted corundum.
Ruby corundum.
Spinel rubies.
Opal.
Beryl.
Orthoclase felspar.
Apatite.
Pyroxene.
Tremolite.
Pyrophylite.
Antimonite.
Molybdenite.
Meteorite (meteoric iron).

Included also in the mineral exhibit was the rare handsome collections of phosphate specimens loaned by Captain C. A. Scanlan and Major E. Willis, the first containing 375 specimens and the latter about 150 The birds and animals from the Charleston Museum, exhibited by Dr. G. E. Manigault, the Curator, were very attractive. There were six specimens of the latter and two hundred and fifty of the former, and the following specimens of mammals, birds and reptiles grouped: Golden eagle and wild turkey, rattlesnake and mocking birds defending their nest, red fox with mallard duck, raccoon with Southern gray squirrel; also, the following skeletons of mammals:

Pig-tailed monkey. Sacred monkey of India.

Black spider monkey. Brown mink. American black bear.

English badger. Azara's fox. Scotch staghound. Fox squirrel.

Indian fruit bat. Tayra. (Galictis barbara), from South America.

The following skeletons and birds: Crested currasson, horned screamer, roseate spoonbill, cassowary, and skeleton of yellow-bellied terrapin; and the following skeletons of fishes: Pompano or pompino, drum, sheephead and angel fish.

The fish exhibit contained eighty-four specimens in plaster, 104 in alcohol, and some miscellaneous specimens.

A special Report on the Exposition work was made by the Department of Agriculture in July, and 5,000 copies were published.

At a meeting of the Board of Agriculture held May 6, Dr. A. B. Rose, Colonel W. L. Trenholm and Mr. Casper Chisolm, representing the Agricultural Society of South Carolina, appeared before the Board and requested permission to place the specimens exhibited at New Orleans on exhibition at Charleston during the State Exhibition to be held there in November. The Board authorized the Commissioner to transfer the exhibit to the Society, and it is now in Charleston, and at the close of the Exposition there it will be transferred to Columbia and placed on permanent exhibition in the building of the Department of Agriculture.

A financial statement of the disbursement of the State appropriation for expenses of making the exhibition at the Exposition is submitted at the close of this Report. The regular appropriation having been exhausted in making the exhibit, three hundred dollars of the funds of the Department of Agriculture were used to defray the cost of packing the articles to be returned.

The permanent value of the articles returned amounts to over $3,000.

STATISTICAL REPORT.

The statistical information compiled by the Department of Agriculture is derived chiefly from the monthly reports of County and Township correspondents, but these are not relied on entirely; the census reports, the publications of the National Department of Agriculture, the Reports of State and County officials and other authorities are consulted when necessary.

The system for collecting information is, in the main, the same as that followed by the National and State Departments of Agriculture.

In the last Annual Report of this Department we recommended that if the State census is ordered, that the work be so enlarged as to include agricultural statistics, but the State enumeration was not ordered at the last session of the Legislature; and as it may be provided for at this session, we desire to repeat the recommendation contained in the last Report.

CROP ESTIMATES FOR 1885.

Cotton.

The estimates of the area in cotton in South Carolina have heretofore been made upon the basis of advanced sheets from the Census office obtained in 1880, but the official publication of the Census Reports showed that there were errors in the advanced sheets furnished this office. This, of course, affected the estimates based upon this information. To correct this we have adopted the Reports of the National Department of Agriculture for 1884, and based our estimates of the area for 1885 upon those Reports.

The area of 1884 was 1,714,670 acres, and for 1885, 1,722,107 acres. The yield by the National Department Report for 1884 was 502,000 bales; the yield for 1885 by our estimate is 617,162 bales. This estimate is based upon returns of an average date of October 10, but the reports on the condition of the crop showed that later returns would not materially change the yield indicated at the date mentioned.

The weather during the planting season was favorable, and on the 1st of May the condition of the plant was reported higher than at the same date of the previous year. The condition on the 1st of June was 2 points lower than on the 1st of June, 1885. On the 1st of July it was 1 point higher than on the 1st of July, 1884, and on the 1st of August 15 points higher than on the 1st of August, 1885. The returns on the 1st of September showed a greater decline in the condition of the crop than had been reported in the previous ten years, with the exception of the year 1878. The following extract from the September Report of the Department explains the great decline in the condition of the crop:

> "The frequent rains and generally favorable seasons during the month of July gave the plant a vigorous and luxuriant growth. The condition on the 1st of August was reported higher than at the same period since 1880, and in many sections of the State the prospects for a full yield had not been better in years.
>
> "The weather during the last month was extremely unfavorable. A drought and high winds prevailed in every County. Many correspondents report that the shedding caused by the sudden checking of the growth of the plant has been unprecedented. It is believed in some sections that the entire top and middle crop has been lost.
>
> "Caterpillars appeared in eighteen Counties, and fifty-seven correspondents report injury to the crop by the worms. The greatest damage from this cause has been in the lower Counties and on the Sea Islands. The application of Paris green destroyed the worms in most cases, preventing further depredations, but was ineffectual in localities, as the poison was several times washed off by rain soon after being applied.
>
> "The storm on the 24th and 25th of August was very destructive to the sea island cotton, and the correspondents estimate the loss at fully 60 per cent. of the crop. The unfavorable weather has not affected the crops in the upper Counties to such an extent as in the lower and middle sections of the State."

Picking was general in all parts of the State by September 1st. The crop was gathered in fair condition. While the amount of commercial fertilizers used during the past season exceeds the quantity used in any previous year, the reports to the Department show that four per cent. less than last year was used on cotton.

Corn.

The area in corn in 1885 was 1,420,298 acres, against 1,372,821 acres in 1884. The yield for 1885 was 16,579,968 bushels, and in 1884 13,728,210 bushels.

The seasons for the growth and maturity of early planted corn were favorable, while the late corn was injured by the August droughts. There were local complaints of damage to early corn by crows and worms, and in some sections bottom lands were badly washed by excessive rains and overflows of streams, but the damage from these causes was confined to limited areas and did not materially affect the aggregate yield for the State.

Rice.

The area in rice was 98,086 acres in 1885, and 75,957 acres in 1884. The yield for 1885 was 82,431,850 pounds, and in 1884 44,057,580 pounds. The weight of rough rice varies greatly in different seasons, and it is consequently difficult to arive at a correct estimate. This in a measure accounts for the increase in the yield of the crop in 1885 over the crop of 1884, but the seasons in 1885 have been much more favorable than during the previous year. In 1884 the crop was seriously damaged by the September gales, and the crop of 1885 sustained very light losses from this cause. The yield in 1885 is based upon the prospective yield on the 10th of October. The weight allowed in the estimate is forty pounds per bushel.

Since the above was written the Department has received reports showing considerable damage to the rice crop by high tides. There is not sufficient time before this Report goes to press to estimate the extent of the injury to the crop from the cause mentioned.

Small Grain.

The area in wheat in 1885 was 195,976 acres, and 197,631 acres in 1884. The yield was 1,207,525 bushels in 1885, and 1,946,817 bushels in 1884.

The area in oats was 339,736 acres in 1885, and 341,866 acres in 1884. The yield was 3,308,805 bushels in 1885, and 5,024,579 in 1884.

A drought which prevailed late in the Fall of 1884 prevented the sowing of the usual area of oats at that time, and a much larger area of Spring-sown oats was the result. The yield of Spring-sown oats is rarely ever as large as the Fall-sown, and although in some localities they were better this year, the difference was not sufficient to make up the deficiency resulting from other causes. The seasons were very unfavorable during the growth and development of both crops. The Winter was unusually severe and the crops were Winter killed, and seriously injured by the drought and cold weather in the early Spring. Owing to these causes, the yield of both crops has been considerably decreased below an average year. The quality of the grain is reported at 95, 100 representing average quality.

Barley and rye are grown for Spring pastures, and the area and yield show very little variation from former years.

Sugar Cane.

The area in sugar cane was 2,955 acres and the yield 426,950 gallons of syrup.

Sorghum.

The area in sorghum was 9,620 acres and the yield 670,450 gallons.

Tobacco.

More interest has been manifested in the culture of tobacco during the year 1885 than for many years. The Department procured and distributed a quantity of seed of different varieties throughout the State. The experiments so far reported have been satisfactory, and it is believed will lead to an enlargement of the area in cultivation hereafter. The area in 1885 was 585 acres and the yield 227,750 pounds.

Peas.

The number of acres in peas in the State was not given in the Census Report, only the yield in bushels being stated. The only way in which an estimate can be made, therefore, with a fair degree of accuracy, is by estimating the area by the yield reported. It is plain that this gives too low a result, but is accepted as probably the safest way of making the estimate. Obtained in this manner, the area in peas in 1885 is estimated at 142,500 acres, and the yield at 905,400 bushels.

Potatoes.

The area in sweet potatoes in 1885 was 41,200 acres, and the yield 3,738,805 bushels. The area in Irish potatoes in 1885 was 4,415 acres, and the yield 505,755 bushels.

Hay.

The National Department of Agriculture in 1879 estimated the number of tons of hay harvested in 1879 at 25,200 tons. No estimate of the quantity produced has heretofore been made by this Department, but the reports of the correspondents show that an unusual quantity has been harvested during the year 1885. The number of farms in the State in 1880 was 93,864. If they only averaged one-fourth of one ton to the farm, the yield would have been 23,466 tons. The yield was certainly greater than this. Following the reports of the National Department of Agriculture for 1879 and adding to it the usual annual increase in production and the increased amount from favorable seasons the present year, the yield for 1885 can be safely stated at 30,000 tons from the native grasses. Another valuable forage crop is the pea vine hay. The correspondents estimate the yield for the present year at 1,000 pounds to the acre. On the acreage planted in peas this would give the total yield for 1885 as 71,250 tons. The estimated yield of corn fodder for the present year is 243 pounds per acre. Estimated upon the area in corn this would give 172,566 tons as the yield for the year 1885. This makes the aggregate yield of "long forage" for the year 273,816 tons.

Fruits.

An effort was made by the Department to ascertain the number of acres in the principal fruits of the State, and the annual value of the crop, but returns were only received from 94 of the 410 Townships in the

State, and these do not afford sufficient data to form an approximate estimate of the total value of the crop. The aggregate of the returns is given herewith, however, with the explanation that it covers less than one-fourth of the area of the State:

APPLES.		PEACHES.		GRAPES.		PEARS.		MELONS.	
Acres.	Value Crop.	Acres.	Value Crop.	Acres.	Value Crop.	Acres.	Value Crop.	Acres.	Value Crop.
7,041	$91,685	11,877	$121,856	2,194	$64,260	377	$5,808	10,403	$166,200

Truck Farming.

The great bulk of the products of truck farms or gardens is produced around or near the City of Charleston.

The following extract, from the Annual Trade Review of the Charleston *News and Courier*, gives interesting facts and figures showing the extent of this industry in that section of the State tributary to Charleston:

> The fruit and vegetable season of 1885 has been one of mixed results as far as can be learned from the growers and shippers, but upon the whole may be said to have been fairly favorable. The crops of berries and potatoes, which are the leading features of the business, were exceptionally good, despite the usual number of early Spring and late Winter frosts. The main drawback was the delay in getting the crop to the Northern markets consequent upon these frosts, which retarded maturity. Truck farming is an industry which has been developed since the late war, and has come to be a very important one in Charleston, representing a business of nearly a half million dollars per annum and steadily growing. The area of land devoted to fruit and vegetable culture in the immediate vicinity of Charleston has been curtailed during the last two years by the gradual extension of the city in a Northerly direction, which necessitated the cutting up of much of the land in the near suburbs and its use for building purposes, but this has been made up by an extension of the area in other directions, and the business this season, instead of showing a falling off, really shows a marked increase over that of last season. As far as profit is concerned, the situation is best expressed by a grower, who said: "Those who were farming their own lands made money; those who hired their lands had a harder row to hoe."
>
> The first crop of the season in point of time and the most important in point of value and quantity is the strawberry crop. It is agreed on all sides that an enormous quantity of berries was raised around Charleston in the past season. One million two hundred thousand quarts, it is conceded, would be a moderate estimate for 1885, against a crop of seven hundred and fifty thousand quarts last year. Yet many thousand quarts of berries were left rotting in the fields, because they matured so late in the season that it did not pay to pick them. The fruit was a little late in getting into market, however, and the shipping season lasted only about five weeks. It may be mentioned that, in order to be remunerative, the Charleston berries should reach the New York market from six to eight weeks ahead of the Norfolk strawberries, which crowd them out as soon as they appear in the market. Notwithstanding this short market period, however, the improved facilities for the shipment and the handling of the fruit enabled growers and shippers to do a considerable business, and the shipments aggregated probably 669,565 quarts, against 504,970 quarts in 1884, 708,680 quarts in 1883 and 430,000 quarts in 1882. The early fruit was not of the best character, but some fine berries were shipped. The prices obtained ranged from fifty cents to five cents a quart. Ten cents may be considered a fair average price, which would represent a business in berries aggregating $120,000.

Next to the berry crop in importance and extent is the potato crop. Three or four years ago Charleston monopolized this trade in early potatoes, and the profits of the trade were represented by gilt-edge figures. Potato culture, however, has been considerably extended, and the vegetable is shipped North now from several sections of the low country. The crop which passes through Charleston is raised in the suburbs and on the adjacent main land and sea islands. The season seems to have been favorable, and the crop, although somewhat late in getting to market, was fairly remunerative. There was, as was the case last year, an active competition with Florida potatoes, which, by the way, will have in the future to be considered as an important factor in the calculations of the Charleston potato grower, and the prices obtained were on the whole not as satisfactory as could have been desired. The shipments for the season aggregated about 60,000 barrels against 43,296 barrels last year, 51,460 barrels in 1883 and 45,340 in 1882.

The shipments of miscellaneous vegetables, such as peas, beans, cucumbers, tomatoes, lettuce, cabbages, &c., show no decided changes. Most of these were late in getting to market, but fair prices were obtained, and the volume of business shows a decided gain. The following table gives the shipments of miscellaneous vegetables for the past five years:

1881	pkgs...47,115
1882	62,333
1883	81,332
1884	86,761
1885	90,530

The bulk of these shipments in this season, as in past years, consisted of cucumbers, of which a very large crop was raised, and of cabbages, which are now one of the staple articles of export, and which are extensively and successfully cultivated on the neighboring sea islands. The early peas, which were at one time a very important feature of the truck farm crop, are no longer extensively cultivated. The canning establishments in this country and Europe have succeeded in putting up the *petits pois* to such perfection that "early peas" may be eaten as well at Christmas as at any other time of the year. The crop of tomatoes also has ceased to be an important feature of the export trade. Although the canned tomato is not equal to the fresh, a dangerous rival has entered the field. Bermuda tomatoes reach the market several months in advance of the Charleston market, and these and the Florida tomatoes have about crowded us out. By the time the Charleston article reaches the New York market, New Yorkers have been surfeited with fresh tomatoes.

A growing and important feature of the truck farm business of Charleston is the export of asparagus, which at present is raised at Mount Pleasant. The figures are not obtainable, but the shipments this season are known to have been large, and as the article was of the finest quality the prices obtained were very satisfactory.

The melon business, while it hardly belongs to Charleston proper, forms a very important feature of the Summer export business of the city. Some idea may be formed of the rapid growth of the business when it is stated that the New York steamers, which last year carried not over 25,000 melons from Charleston to New York, have taken this season very nearly 300,000. The melons come from along the line of the South Carolina Railway, in the section of country lying between Branchville and Aiken, on the Augusta division of the road. The crops this year were very fine and the business is reported to have been very satisfactory. The Barnwell melon raised this reason is said to be the finest that has ever reached this market, not even excepting the once famous Augusta melon.

The following table exhibits the shipments of berries, vegetables and melons by rail and by steamer during the past three years:

	1885.	1884.	1883.
Berries, quarts	669,565	450,680	708,476
Potatoes, barrels	60,000	45,349	51,460
Vegetable, pkgs	90,530	62,333	81,332
Melons	500,000	....	....

The following is an estimate of the value of the fruit and vegetable crops of Charleston during the past year:

Strawberries, early crop	$200,000
Potatoes	350,000
Melons	75,000
Miscellaneous fruits and vegetables	350,000
Total	$975,000

This is about $175,000 above the aggregate estimated value of the crops in 1884, and about $25,000 short of the crop of 1883.

PRICES OF AGRICULTURAL PRODUCTS.

The following estimates of the prices of the principal agricultural products in South Carolina in 1885 are made up from returns furnished by County and Township correspondents. The prices given for cotton is the average of the prices received by farmers for all grades of the staple:

Sea Island cotton	30 cents per pound.
Upland cotton	9 cents per pound.
Corn	72 cents per bushel.
Corn fodder	81 cents per 100 pounds.
Rice	3 cents per pound.
Peas	89 cents per bushel.
Pea vine hay.	70 cents per 100 pounds.
Irish potatoes	86 cents per bushel.
Sweet potatoes	53 cents per bushel.
Hay	80 cents per 100 pounds.
Sugar cane syrup	63 cents per gallon.
Sorghum (molasses)	46 cents per gallon.
Tobacco	15 cents per pound.
Wheat	113 cents per bushel.
Oats	58 cents per bushel.
Rye	123 cents per bushel.
Barley	120 cents per bushel.

AGRICULTURAL MACHINERY.

The use of improved labor saving machinery on the farms of the State has increased rapidly in the past few years. The Department obtained estimates of the number and value of such implements now in use from its regular correspondents and from dealers in machinery, and the following statement is made up from the estimates of both dealers and correspondents:

Sowers	2,683
Reapers	2,062
Sulky plows	1,708
Guano distributors	20,531
Harrows	13,337
Stump pullers	51
Screw pulverizers	77
Miscellaneous	6,305
Total	46,754

The aggregate value of these machines is estimated at $882,688. There are in use on the farms for cotton ginning, threshing, &c., 3,631 engines, with 29,750 horse power, valued at $2,726,000. To these must be added the value of the cotton gins and presses. The reports of County correspondents show that there are over 5,000 cotton gins now in use, or about one to every twenty farms. The original cost of a first class gin and press is about $400. Estimating that their value is one-half of the original cost, this makes the value of gins and presses $1,000,000. The aggregate value of farm implements, engines used on farms and cotton gins and presses may then be stated at $4,608,688. The estimated value of this machinery in 1880 was $3,202,710, showing an increase in the five years of $1,405,978. The present valuation only exceeds the value of farming implements and machinery in 1850 by about $500,000, and is about $1.500,000 *less* than in 1860. The value in 1870 was only $2,282,946, showing that this value had depreciated nearly four millions of dollars during the period of the war. The statements given of the present value of this machinery show that our farmers are again rapidly purchasing such machinery as their means for the purpose permit.

FARM LABOR.

The condition of farm labor was reported as somewhat more efficient during the year 1885 than for some years. The system of tenant farming largely prevails in all parts of the State, and the terms between land owner and tenant vary in every County and in almost every locality. This system is open to serious objections, and is in the main unsatisfactory to all parties, but it is continued from year to year, and both the land owner and the tenant hope for improvement in the future. The average wages paid farm laborers for the State is as follows:

Men.

Per day, with board	45
Per month, with board	$ 8.72
Per year, with board	90.75

Women.

Per day, with board	30
Per month, with board	$ 5.29
Per year, with board	54.35

Men.

Per day, without board	54
Per month, without board	$11.24
Per year, without board	135.00

Women.

Per day, without board	40
Per month, without board	$ 7.24
Per year, without board	84.00

In addition to regular wages, laborers are furnished comfortable houses with garden patches, and frequently are allowed time to cultivate small crops of their own. The most pleasant and harmonious relations exist between employers and laborers.

FERTILIZERS.

Estimating from the tonnage tax received by the Department from November 1st, 1884, to October 10, 1885, there were 114,340 tons of commercial manures used in the State during the past year against 101,048 tons during the year 1884. This is probably the largest quantity ever used in the State in a single season.

In response to the request of the Commissioner, seven of the largest manufacturers in South Carolina furnished the Department estimates of the relative proportion of the various kinds of commercial manures sold in the State this season. From the figures furnished, the Commissioner makes the following estimate of the total consumption of these manures for the season 1884–85:

	TONS.
Ammoniated fertilizers	28,585
Acid phosphates	73,178
Kainit	12,577
Total sales	114,340

The average selling price of these goods at Columbia the past season was:

	PER TON.
For ammoniated fertilizers, cash	$30.00
For ammoniated fertilizers, time	37.50
Acid phosphates, cash	20.00
Acid phosphates, time	25.00
Kainit, cash	14.00
Kainit, time	18.00

At the cash prices the amount expended for commercial manures would amount to:

For ammoniated fertilizers	$ 857,550
Acid phosphates	1,463,560
Kainit	176,078
Total	$2,497,188

And at the time prices the cost would amount to:

For ammoniated fertilizers	$1,071,937
Acid phosphates	1,829,450
Kainit	226,386
Total	$3,127,773

This makes the difference between the cash and time prices in the total amount expended $630,585.

The sales of these fertilizers in South Carolina, as shown by the books of the Department of Agriculture for the first five years, have been as follows:

1881	109,312 tons.
1882	94,817 tons.
1883	100,368 tons.
1884	101,048 tons.

Much the larger part of this business is done by the South Carolina companies, who have about $3,000,000 invested in the manufacture of fertilizers; and while the farmers have been improving their lands and increasing the agricultural productions of the State by the use of these artificial stimulants, they have also been building up a great home industry.

AGRICULTURAL LIENS.

The agricultural liens recorded in the offices of the Clerks of the Court, given to secure advances made on the growing crops for supplies, fertilizers, &c., number 66,166, amounting to $6,595,000. The returns showing the number and amount of these liens for the years 1883 and 1884 was not obtained, but the estimate of the amount of supplies purchased on time in 1882 was $9,218,312. This shows a decrease since 1882 of $2,623,312. When it is remembered that the years 1883 and 1884 were both unfavorable seasons for cotton, and the yield of the crop was greatly reduced, the decrease mentioned is significant. It shows that the farmers are economizing more and producing more of the necessaries of life.

LIVE STOCK.

While it is generally admitted that much of the live stock owned in the State escapes taxation, still the tax books are the safest guide in estimating the number of such stock. No assessment of real or personal property was made in the State this year. The Annual Report of the Comptroller General for 1884 showed the following:

	NUMBER.	VALUE.
Horses	631,412	$4,025,273
Cattle	235,682	2,369,439
Mules and Asses	69,574	4,711,281
Sheep and Goats	132,084	150,893
Swine	351,067	643,385
Total	851,819	$11,900,271

The operation of the Stock Law—fencing stock instead of crops—caused a considerable reduction in the *number* of cattle in the State, but there is no doubt but that it greatly improved the quality of such stock. The "scrubs" have been thinned out and blooded stock is taking their places. There are now in the State, established within a very few years past, twenty-two stock farms. The National Department of Agriculture estimates that the value of the improvement in cattle alone in South Carolina by the introduction of thoroughbred stock, and crossing on natives, amounts to thirty-five per cent. of the original value, or $1,458,227.

An effort was made by the State Department, the present year, to ascertain the number of thoroughbred horses, cattle, sheep and swine in the State, but it was only partially successful. The result of this investigation is submitted herewith, but it is necessary to explain that the estimate is below the actual number:

Cattle	5,700
Horses	630
Sheep	3,800
Swine	9,000

The cattle include Jerseys, Ayrshires, Devons, Holsteins, Freisians, Brahmins, Herefords, Alderneys and Guernseys. The horses, Normans, Percherons, Hambletonians and racing stock; the sheep, Merinos, Southdowns, Cotswolds and African Broad Tails; the swine, Essex, Jersey Reds, Poland Chinas, Berkshires and Chester Whites.

COST OF PRODUCTION.

There is nothing so important for the farmer to know as the cost of producing the various crops, and there is nothing so hard to estimate correctly, as so many considerations enter into the calculation. So much depends upon the management of the farm, the amount produced, the crops grown, the season, and whether the farm is conducted on a cash or credit system, that it is difficult to even approximate correctness in statements regarding the cost of producing any crop. This is well illustrated in a very carefully prepared detailed statement of the cost of producing cotton published in the Hand Book of South Carolina. Eleven examples are given, and the cost varies from six cents and a fraction to ten cents and a fraction per pound. And the statement is as follows: Where twelve bales of cotton are made to the mule, the cost is estimated at 6.10 cents; eight bales to the mule, 8.32½ cents; four bales to the mule, 15.22½ cents per pound. In these last estimates no allowance was made for taxes, rent, interest on capital invested, nor for the services of the proprietor or manager, nor for transportation or charges for selling.

The correspondents were asked for estimates regarding the cost of producing the various crops, but the answers varied so widely, and were so incomplete, that they are omitted. It is, as already stated, the most important question connected with farming operations, because the farmer is not so much interested in the quantity produced as in the profit on the production. The matter will be investigated more systematically and thoroughly hereafter.

Tabulated statements giving the area and yield by Counties of the various crops in the State are published with this Report.

AGRICULTURAL GRASSES OF SOUTH CAROLINA.

BY H. W. RAVENEL.

Prepared for the Annual Report of the South Carolina Department of Agriculture, 1885.

In treating of agricultural grasses, viz., those which are valuable to the farmer either for pasturage or for hay, the first obvious division is between those which spring up spontaneously and those which it is necessary to cultivate. The former include those which are native or naturalized, and which mature and sow their own seeds and take care of themselves. These are found in all natural pastures, in open swampy lands, along roadsides and in the woods—and (as in the case of crab and crow-foot grasses) those which spring up of their own accord in cultivated fields. The latter include all others which require planting and cultivation, and which may be either annuals or perennials.

WILD OR NATIVE GRASSES.

The ordinary pasture grasses—those which are native, or, if introduced, have become so thoroughly naturalized as to be able to take care of themselves—will be treated of first.

Most of these are the "wild grasses," so called—grasses which are generally spread through our State, and help to make up the ordinary pasture land. They vary in different localities, according to the region of country in which they are found, and to the composition of the soil, whether dry or damp, clay or sandy. Generally there is a mixture of many species in every natural pasture, some preferred by animals for cropping, and others again, when left undisturbed, best for curing into hay.

For many of these wild pasture grasses no local or common names are known, and so only the botanical names can be given; but by aid of the figures in the plates, or by inquiry, most of them can be recognized.

SMOOTH PASPALUM. (*Paspalum laeve.*) Plate 1.

The genus Paspalum comprises a large number of species, mostly confined to the South. They are nearly all perennial-rooted, and are commonly found in all natural pastures and meadows, particularly those with damp soil. Prof. Phares, of the Agricultural and Mechanical College of Mississippi, who seems to have made a special study of our Southern grasses, says: "They are all succulent, tender, nutritious, hardy, thrifty, and relished by all grass-eating animals. They fill the soil with a matting of roots, and cover the surface densely with luxuriant foliage from early Spring till autumnal frosts."

The Smooth Paspalum is a tall growing species from three to four feet high. It has been found to make a very good hay, as Prof. Phares says he has a neighbor who has been feeding this grass for twenty-five years, and for many years has had a meadow of it, from which without even having seeded he annually mows about two tons of hay per acre.

SWAMP JOINT GRASS. (*Paspalum distichum.*)

This species is very common in the tide swamps of the low country, a great pest to the rice planters, and is known as *joint grass.* It, however, grows freely in the upper and middle parts of the State, preferring rich damp soils. It has very much the habit of Bermuda grass, with creeping root stocks which throw out roots below at each joint and a tuft of leaves above. It is rather a low growing grass, rarely exceeding 12 to 15 inches high, but the roots are matted over the surface and it furnishes a dense and luxuriant foliage. Good for pasturage, but scarcely large enough for hay.

Dr. Vasey, of the Department of Agriculture in Washington, in his "*Agricultural Grasses of the United States*—1884," alludes to the perennial-rooted, evergreen species of paspalum, both of creeping and low habits, lately brought into prominent notice in Texas as giving great promise of usefulness. One of these (*Paspalum remotum*) was sent to the Department by H. B. Richards of La Grange, Texas, who states that it roots at every joint and sends up shoots like a layered grape vine, in that it remains green all Winter and it is almost impossible to destroy it.

Another species (*Paspalum platycaule,*) having the same creeping habit, has been observed in several Southwestern States. It is a grass of lower growth and smaller size than the preceding. Mr. Benjamin Brodnax, of Louisiana, says of it: "That the mode of growth is flat to the ground, taking root at every joint and spreading in every direction. It effectually kills out every other grass or weed, as it forms a thick sod and is evergreen." I saw this grass very common in the pastures around Houston, Texas, in 1869, and also along the railroad from New Orleans to Brashear, in Louisiana. Both these grasses are well worth a trial in our State for permanent Winter pasturage.

PANICUM.—The genus Panicum contains the largest number of species of all the grasses. Many of them are very valuable, particularly those of large growth which are found in low grounds.

CRAB GRASS. (*Panicum sanguinale.*) Plate 4.

This grass is so common and so well known, both for pasturage and for hay, that little need be said of it. It is so universally diffused through the Southern States, that all that is necessary to secure a good crop is to have the land in proper condition in the Spring or early Summer, free of weeds and of sufficient fertility. A bountiful nature does the rest. There are several species of tall growing Panicums, natives of our State, and generally found in rich low grounds, which are valuable adjuncts to a good pasture, and many of them make a good hay.

COCK'S FOOT OR BARN YARD GRASS. (*Panicum crus-galli.*) Plate 11.

This is an annual grass of tall, robust habit, and is readily recognized by referring to the plate. It is a common grass in this State, growing in damp or swampy, rich soils. Dr. Charles Mohr, of Mobile, says of it: "It grows luxuriantly, particularly in the low lands of the coast, is greedily eaten by horses and cattle, and makes a hay of good quality."

Professor Phares, of Mississippi, writes: "Some farmers assure me that they harvest four or five tons of hay per acre. It may be cut twice each season by making the first mowing as soon as it begins to bloom."

PANICUMANCEPS (*two-edged Panic grass*), PANICUM AGROSTOIDES (*Red Top Panic*), PANICUM PROLIFERUM, and PANICUM GIBBUM, are all tall growing, luxuriant grasses, indigenous to this State, and found mostly in rich, damp soil. They are all probably as good, both for pasturage and for hay, as the *cock's foot grass.*

Several other species of Panicum have been introduced into cultivation in the Southern States, viz., the GUINEA GRASS (*Panicum jumentorum*), the PARA GRASS (*P. barbinode*), the MILLET GRASS (*P. miliaceum*), TEXAN MILLET (*P. Texana*).

These have all been successfully used in certain localities. In regard to *Texan millet,* I can state that I have had it in my garden for six or eight years past, and think highly of it, as well suited to our climate, and more promising than crab or crow foot grass for hay, on account of its greater size and more robust habit. It seeds abundantly and comes up in Spring, disputing possession of the ground with our most vigorous grasses. It is an annual, growing from three to four feet high, and in rich spots still higher,—at first erect, then becoming decumbent and widely spreading, sparingly branched and very leafy—with leaves eight to ten inches long and about one inch wide.

Mr. Pryor Lea, of Goliad, Texas, has had it in cultivation for a number of years, and says: "I consider it far superior to any grass I ever saw for hay. In this region it is regarded, in the condition of well cured hay, as more nutritious than any other grass."

Mr. W. G. Hinson, a well known and successful farmer, has had the grass on his place on James Island, in this State, and uses it annually for hay.

BROOM GRASS—BROOM SEDGE. (*Andropogon.*)

There are five or six species of broom sedge growing in the State. They are all of similar habits, tall growing, perennial-rooted, coarse, and inferior for pasturage. It has been stated in the agricultural papers that a fair quality of hay may be made from the broom sedge if cut just before running up to seed. It is so common in all abandoned old fields, that when hay is scarce it should be used. These grasses have generally been looked upon very contemptuously by the farmer, but they are so commonly diffused both in open grounds and in the woods, that they assist very materially in natural pastures, and deserve some consideration. Plates 24, 25, 26.

SMUT GRASS. (*Sporobolus Indicus.*) Plate 50.

This is one of the foreign grasses introduced in the early settlement of the country, and generally diffused throughout the South as far as Texas, though nowhere in sufficient quantity to take possession of the grounds to the exclusion of other grasses or to form uniform meadows. It is generally found in the lawns, and about dwellings and roadsides, growing in tufts. The roots are perennial—the tops killed down by Winter frosts. It shoots up in early Spring and affords good pasturage for cattle and horses until frost in Autumn. The seed stalks of the grass are so commonly infested by a smutty fungus, that in certain localities it is impossible to find one clean of the parasite. It takes its name of smut or black seed grass from that cause.

CROWFOOT GRASS. (*Eleusine Ægyptiacum.*)

This and the crab grass, the two most common and most valuable of our hay grasses, are both foreign plants that have become so completely naturalized and so widely spread through the Southern country as to be the chief field grasses in Summer, even excluding most of the native grasses. The crowfoot is a rapid grower, with few superficial roots, and makes no sward like crab grass, and is therefore unfit for pasturage. Its chief value is for hay. It seeds so abundantly, that when growing in favorable situations (cultivated lands after the crop is laid by) it forms a dense vegetation from two to three feet high. It should be mowed as soon as the flower stems are formed, and on good soil will give a second cutting later in the season.

YARD GRASS—GOOSEFOOT—CROWFOOT. (*Eleusine Indica.*) Plate 79.

This grass has several local names, and one of them by which it is known, being crowfoot, it is apt to be misleading. It seems to be called crowfoot in the Southwest, but in this State and Georgia that name is mostly given to the last described species. They are very different looking grasses, and would never be confounded by any one who had seen them both. The present species is of much stouter habit, with large succulent stems and of taller growth. The spikes of flowers, four or five in number, are larger, and most generally upright, are only slightly diverging, whilst in the other they are always arranged horizontally. It has a dense mass of deeply penetrating fibrous roots, making it difficult to be pulled out of the ground or cut by the hoe. It seems (at least in this region of country) to be confined to gardens, and waste places around dwellings where the soil is very rich, and not disseminated through ordinary cultivated fields. Animals are fond of it, but it rarely occurs in sufficient quantity to give a character to pasturage or to be mowed for hay. It seems, however, to be in sufficient quantity to be used for that purpose in the Southwest, as Prof. Phares, of Mississippi, speaks thus of it: "The clumps have many long leaves, and stems rising one or two feet high, and many long, strong deeply penetrating fibrous roots. It grows readily in door yards, barn yards and rich cultivated grounds, and produces an immense quantity of seeds. It is a very nutritious grass, and good for grazing, soiling and hay. The succulent lower part of the stems, covered with the sheaths of the leaves, renders it difficult to cure well, for which several days are required. It may be cut two or three times, and yield a larger quantity of hay."

GAMA GRASS. (*Tripsacum dactyloides.*) Plate 21.

This is a native grass with stout, thick, perennial roots, growing in large tussocks, and is generally disseminated through the State, but rarely in sufficient quantity to give distinctive character to a pasture. It is a large and coarse grass, with broad flat leaves, and flower-bearing stalks three to four feet high. It does not seed abundantly, and the usual mode of propagation is by slips from the creeping roots. It is generally found in rich, close soils, and yields very excellent pasturage and good hay, but the difficulty of propogating it will probably stand in the way of any general use.

JAPAN CLOVER (*Lespedeza striata.*) Plate 120.

In treating of the wild or uncultivated grasses, which contribute towards forming our natural pastures, the Japan clover, though not a grass, and not coming strictly under our review, is now so widely spread through all the Southern States, and contribute so much to our natural pastures, as to deserve a passing notice. Although at one time very extravagant things were said of the merits of this plant, it cannot be considered one worthy of cultivation at much cost or labor. On good land it forms an excellent pasturage all Summer, but it can never be used for hay on account of its low habit of growth and the hard, wiry stems. Wherever it gets a footing, it stays. It seeds very abundantly, and spreads annually, extending its limits, and aids very materially for ordinary pasturage.

This is a leguminous plant, allied to the clovers. The legumes, or pods, are small, bearing one seed only, and borne one in the axil of each leaf. It is difficult to collect, and seedsmen do not keep it in their stock.

It is an annual, not a perennial, as some agricultural writers have erroneously stated. The seeds mature in Autumn and drop to the ground; the plant then dies down, root and stalk. The seeds germinate during early Winter and grow slowly until warm weather sets in, when it furnishes a good bite to animals during the whole Summer.

CULTIVATED GRASSES.

Under this head I include all such grasses as need assistance, either by preparation of the land for their occupation, as in the case of the perennial-rooted grasses, or yearly sowing and cultivation, as with the annuals. I will first speak of the Summer growing species, whether annual or perennial.

BERMUDA GRASS (*Cynodon dactylon.*) Plate 75.

Among our cultivated grasses we must give the first rank to Bermuda by the concurring testimony of farmers from Virginia to Texas. It is a grass which has received both blessings and curses. The favor or disfavor with which it is viewed depends upon whether it be in grazing land or cultivated land. The very qualities which make it valuable for one purpose, viz.: rapidity of growth and tenacity of life, each separate joint, if left behind, having vitality enough to grow and propagate, makes it detested in arable lands. But at the cost of some extra labor it can be eradicated. When left as a permanent meadow for many years, it forms a dense, compact sward of matted roots and decaying leaves, which, on being turned over by repeated ploughings in midwinter, so that all exposed roots are killed by frost, or in dry, hot midsummer, when they are exposed to the sun, it can be effectually destroyed. The decaying sward, containing so much vegetable matter, adds very much to the fertility of the land. This grass is not a native, but comes to us from the tropics, and has been in this country from its earliest settlement. Though shooting up flowering stems and going through all the forms of seed bearing, it does *not* mature seed in this country, but does so elsewhere. The seedsmen who offer it for sale import their seed from abroad. The common mode of propagation in this country is by the roots, or, more properly speaking, the underground stems. These are passed through a straw cutter, and each joint has a bud or an eye capable of growth. Of course if one is intending a permanent meadow, the ground should first be well manured, unless otherwise very rich, and then thoroughly broken up by the plough. The right beginning of all such work tells with ten-fold interest in the end. A well established meadow of this grass on good land gives several mowings in the course of the summer, and yields a very large amount of most nutritious hay. I haye seen an excellent combination of vetch and Bermuda in the same ground. They grow together on the very best of terms without any "struggle for life," the one taking the Winter season, the other the Summer. There are several vetches in cultivation, but the common *vetch* (*Vicia sativa*) is the best for our country. This springs up in Autumn, just while the Bermuda begins to decline, and after frost, when the Bermuda is top-killed, has free growth. It continues to grow all Winter, and by April attains a height of two to four feet, with seed pods beginning to ripen. In that state it should be mowed, and enough seeds will be left on the ground to give a good stand for another year. When the vetch is removed, the Bermuda then goes forward rapidly.

It is scarcely necessary to cite individual testimony to the value of Bermuda grass. The series of experiments made by the late Dr. St. Julien Ravenel, near Charleston, are well known. Its successful culture in the interior by ex-Governor Hagood, Mr. Felder and others, and the bales of Bermuda hay exhibited from this State at the New Orleans Exposition, speak for themselves. Mr. Howard, of Georgia, in his Manual of Grasses, Prof. Killebrew of Tennessee, and Prof. Phares, of Mississippi, all speak of it in the highest terms as a meadow grass, both for pasturage and hay.

MEANS GRASS—JOHNSON GRASS. (*Sorghum Halapense.*) Plate 29.

This grass has long been known in our State, certainly since the beginning of the present century, and probably earlier. The erroneous statement of its having been sent by the Sultan of Turkey to Governor Means in 1835 has been so widely disseminated, that even in the official

Report of the Department of Agriculture in Washington, on "*Agricultural Grasses of the United States,*" 1884, it is there repeated. The fact is, that it was growing and well known in Fairfield County long before 1835, very probably before Governor Means was born. The tradition in that part of the country, as I learned from the late Col. R. J. Gage, who lived in an adjoining County, a farmer all his life, and well posted in all matters of that kind, is that it was accidentally introduced in some imported hemp seed on the lands of old General Wade Hampton, who then owned lands in the "Means settlement."

Dr. Martin Philips, now of Mississippi, but a native of that section of the State, venerable in years and well known as an agricultural writer and editor of an agricultural paper, in a letter to me on the subject, affirms its antiquity, but thinks it was introduced and first brought to notice by a member of the Means family who had been a missionary somewhere on the Mediterranean.

About the year 1840, William Johnson carried some of it to Alabama and introduced it there. It became a popular grass, and is known all through the Southwest as "Johnson grass." Here in our State it is generally known by the other name.

This is a valuable grass. For hay making, probably the most prolific grass growing at the South. Like Bermuda, it is perennial-rooted—a Summer-growing grass, and top-killed in Winter. It is a tall, coarse grass; in rich soil attaining a height of six feet or over, a fast grower, and may be mowed several times in the season. Unlike Bermuda, it does mature seed, and this fact constitutes the only serious objection to its introduction, as it may be spread upon arable lands adjoining. This objection, however, may be obviated in great measure by mowing always before the seeds form.

It seems to be in great favor in all the Gulf States and as far as Texas. Mr. N. B. Moore, of Augusta, Ga., who was one of the most successful grass growers, gives this the preference for hay over all other grasses. His meadow consisted of about one hundred acres of alluvial soil on the Savannah River near Augusta. He says it should be cut when from two to three feet high, and on such land as his it will give three or four cuttings, if the season is propitious.

Among the cultivated grasses must not be omitted the various kinds of millets and sorghums used so extensively for green forage, for soiling, for hay and for ensilage.

DOURHA CORN AND MILO-MAIZE. (*Sorghum vulgare.*)

These two sorghums, if not identical, at least belong to the same section of the many varieties of sorghum vulgare. These two, and the "Rural Branching Sorghum," hold a conspicuous place among forage plants for their great luxuriance, rapid growth and the great yield of green food. On rich soils, they may be cut several times in the course of the Summer. These are non-saccharine varieties.. Besides their value for green food, if allowed to mature their seed, the yield of grain is enormous. Their great popularity all over the country as a forage plant, from the prairie lands of the Northwest to Florida and the Gulf States, attests their value.

HUNGARIAN GRASS—ITALIAN MILLET. (*Setaria Italica.*) Plate 16.

This millet has a high reputation in certain quarters, but does not seem to be as generally cultivated in this State as other millets. Prof. Phares, of Mississippi, says: "It produces from two to four tons of hay per acre, but it is folly to sow it on poor land."

EGYPTIAN, OR CAT TAIL, OR CANDLE, OR PEARL MILLET. (*Pennicillaria spicata.*)

The number of names by which this old favorite is known proves its popularity. "A tall, erect, thick-stemmed grass. It grows to the height of six feet or more, and the stalk is terminated by a compact, dense, cylindrical spike resembling the common 'cat tail,' frequently a foot or more in length and an inch thick, which is studded with the small, obovate sessile grains, surrounded at base by an abundance of short coarse hairs or bristles."

On rich soil the yield is enormous. It repays more than most plants for high manuring and good treatment. The growth is rapid, and frequent cuttings may be made in the course of the season, if always done before the jointed stalk begins to run upward to form seed. It is not well suited for hay, as the thick succulent stalk is difficult to cure properly.

TIMOTHY. (*Phleum pratense.*) Plate 49.

This is one of the famous hay grasses, and one of the best known. It is a standard meadow grass all through the North and Middle States, and downward South along the mountain and Piedmont regions. In the middle and lower sections of the State it is too uncertain to be recommended. In favored spots it may succeed. It may be worthy of trial on the rich alluvial swamp lands of the middle and coast region, but certainly not on light and dry uplands.

RED TOP—HERDS GRASS. (*Agrostis vulgaris.*) Plate 53.

In New England this grass is known only as *red top*, and the term *herds grass* is applied to timothy. Here at the South both the above names are applied to it.

This grass is used very extensively all through the Southern States, both for grazing and for hay. It delights in moist swampy lands, and would probably succeed well on the old abandoned rice lands of the coast region and in all rich swamp lands.

The above are all Summer grasses. I will now designate such Winter grasses, either annual or perennial, as furnish pasturage during the Winter months in this latitude:

WINTER GRASSES.

MEADOW OAT GRASS. (*Arrhenatherum avenaceum.*) Plate 20.

Mr. C. W. Howard, in his Manual of Grasses, says of it: "This grass deserves to be placed at the head of the Winter grasses for the South. It has the double advantage of being a good hay as well as Winter pasture grass. It does not answer well on moist land. Rich upland is the proper soil for it. On such land it will grow from 5 to 7 feet high, completely hiding a man walking in it. It will grow on more sandy land than most of the artificial grasses. Hence it is well suited to a large portion of the soil of the cotton belt, perhaps better suited on this account than any other upland grass.

The yield of hay on rich land is large, and the quality is excellent. It matures rapidly. Seed sown in the Spring will produce seed in the Fall. The seed is ripe when the stalk is green. After it is cut no stock should be allowed to graze it during the Summer and Fall."

Mr. Thomas Brigden, of Alabama, speaks of it thus: "We obtained seed from the Tennessee valley under the name of evergreen grass, and it appears at the present time to be by far the most valuable kind we have tried. It remains green during the Winter, and starts into growth very early in the Spring, making a dense, heavy growth from twenty to thirty inches high."

Professor Phares, of Mississippi, says of it: "On sandy or gravelly soils it succeeds admirably, growing two to three feet high. On rich upland it grows from five to seven feet. It has an abundance of long, fibrous, perennial roots penetrating deeply in the soil, being therefore less affected by droughts or cold. These advantages render it one of the very best grasses for the South, both for grazing, being evergreen, and for hay, admitting of being cut twice a year. It is probably the best Winter grass that can be obtained."

I have given space to the testimony of these Southern writers, as this is probably the most valuable of our Winter grasses now known. It is a grass introduced from Europe.

SOUTHERN REED CANARY GRASS—GILBERT'S RELIEF GRASS. (*Phalaris intermedia.*) Plate 31.

This is a native grass, very similar to the foreign canary grass, which produces the seed sold for canary birds.

Mr. Thomas W. Beaty, of Conway, S. C., who has tried it, writes to the Agricultural Department in Washington, and speaks well of it as a green pasturage for sheep and cattle in Winter. It has also been used with some success in Mississippi. In California it is said to have no agricultural value.

ORCHARD GRASS. (*Dactylis glomerata.*) Plate 96.

This is one of the most popular meadow grasses in Europe, and also well known in this country, North and South. With respect to its adaptation to our latitude, Mr. Howard, in his "Manual," says: "This valuable grass ranks next in importance to the 'tall meadow oat grass,' for hay and Winter pasture. It succeeds very well at the South on drained and dry bottom land, or on rich upland. 'With the exception of meadow oat grass, orchard grass stands a drought better than any of the cultivated grasses.'" After cutting it springs rapidly, and the after growth is heavy. This should not be pastured during the Summer or Fall, but should be reserved for Winter grazing.

KENTUCKY BLUE GRASS. (*Poa pratensis.*) Plate 97.

This famous grass is sparingly disseminated throughout the State, even in the middle and lower sections, but only in rich, close soil, or in spots protected from the sun—generally under the shade of trees. Here in the town of Aiken, right in the sand-hill region, it is frequently seen in large patches under the trees, where, from the leaf mould, the soil is improved, and where it is protected from the hot suns of Summer. In garden soils, it thrives and spreads so much from the running roots that it gives some trouble to destroy it.

It is a grass of low habit, with long, narrow leaves, not suitable, therefore, for a hay crop, but invaluable for Winter grazing. Mr. Howard, in his *Manual of Grasses*, corrects a mistake often made in the cultivation of this grass, arising from an ignorance of its habits: "When it first comes up from the seed, it is as fine as a needle, hardly visible to the most careful inspection. It increases its size but little the first Summer. Even the next year the stand will seem to be imperfect. But in the third and fourth year it spreads like magic and occupies the whole ground." In the drought of Summer this grass has a yellow, sickly look, and often appears parched and killed, but the roots are alive under ground, and on the return of cool weather and rains it springs again into life. Summer seems to be the period of rest for all the Winter-growing grasses.

TEXAS BLUE GRASS. (*Poa arachnifera.*) Plate 100.

Nearly allied to the grass last mentioned is this from Texas. It comes with such high recommendations that it should have a trial in our State. This grass first became known to botanists, and was described and named by Dr. Torrey, of New York, in the Report of Captain Marcy's Exploration of the Red River in Louisiana. It is one of the new Western grasses, and probably unknown to most of our readers. I quote the testimony of those who have had experience in its cultivation.

Mr. Hogan, of Texas, in sending specimens of it to the Agricultural Department in Washington, writes:

"I find it spreading rapidly over the country, and I claim for it all and more in Texas than is awarded to the *Poa pratensis* in Kentucky. It blooms here about the last of March and ripens its seeds by the 15th of April. It seems to have all the characteristics of the *Poa pratensis*, only it is much larger, and therefore affords more grazing. I have known it to grow ten inches in ten days during the Winter. The coldest Winters do not even nip it, and although it seems to die down in Summer, it springs up as soon as the first rains fall in September and grows all Winter. I have known it in cultivation some five years, and have never been able to find any fault in it."

Mr. James E. Webb, of Greensborough, Ala., says:

"Recent experiments show that the Texas blue grass flourishes and grows here in West Alabama as finely as could be wished, and is likely ere long to furnish us what we so much need, a fine Winter grass."

Dr. Vasey, the Botanist of the Agricultural Department, Washington, says of it:

"Similar favorable accounts have been received from others. It is likely to prove one of the most valuable grasses for the South and Southwest. By means of its strong stolons or offshoots, it multiplies rapidly and makes a dense permanent sod. It produces an abundance of radical leaves, and those of the culm are long, smooth and of good width."

MEADOW FESCUE—RANDALL GRASS—EVERGREEN GRASS. (*Festuca elatior.*) Plate 107.

A perennial evergreen grass, introduced from Europe, where it is one of the popular standard meadow grasses. I have not heard of its cultivation in this State, but there is testimony from Virginia, Tennessee, North Carolina and Mississippi highly in its favor. Mr. James Taylor, writing from North Carolina, says: "The evergreen grass is good for pasturing through the Fall and Winter. It will do best when sown on dry land, and is well adapted to sheep."

WILD RYE—LYME GRASS—TERREL GRASS. (*Elymus.*) Plates 117, 118, 119.

There are three species of Elymus found native in this State, and all with similar habits.

They are tall-growing, perennial-rooted, evergreen grasses, growing in tufts, with coarse, broad leaves. Though generally disseminated through the State, mostly growing in damp, rich soils, it is rarely found in sufficient abundance to form of itself a uniform meadow. It is not what may be called a gregarious grass. It frequently attracts the attention of farmers, but I know of no successful effort to propagate it largely. Where it is found, it serves a good purpose in adding to the pasturage, but from some cause it has not become popular.

The Brome grasses—CHEAT OR CHESS (*Bromus secalinus,*) Plate 111, and the RESCUE OR SHRADER'S GRASS (*Bromus unioloides,*) Plate 112, are similar in size and habits. They are both annuals, springing up in Autumn and growing during the Winter months, and ripen their seeds in April or May.

The Shrader or Rescue grass has at times been cultivated as a Winter grass, but as it is an annual, and requires a good soil and some cost of cultivation, it will scarcely yield as good results as rye or oats would do with like treatment. I have had it for several years in my ground. The seed germinates the first cool wet weather in Autumn, say in September. It grows all Winter, and matures seed in April, which drop to the ground and remain through the Summer until Autumn. It grows from twelve to eighteen inches high and makes a pleasant green lawn during Winter months.

The following table, comprising the grasses mentioned in the foregoing paper, and arranged with reference to their habits and period of growth, will be found useful:

The letter A placed after the name indicates an annual.

The letter P, a perennial rooted grass.

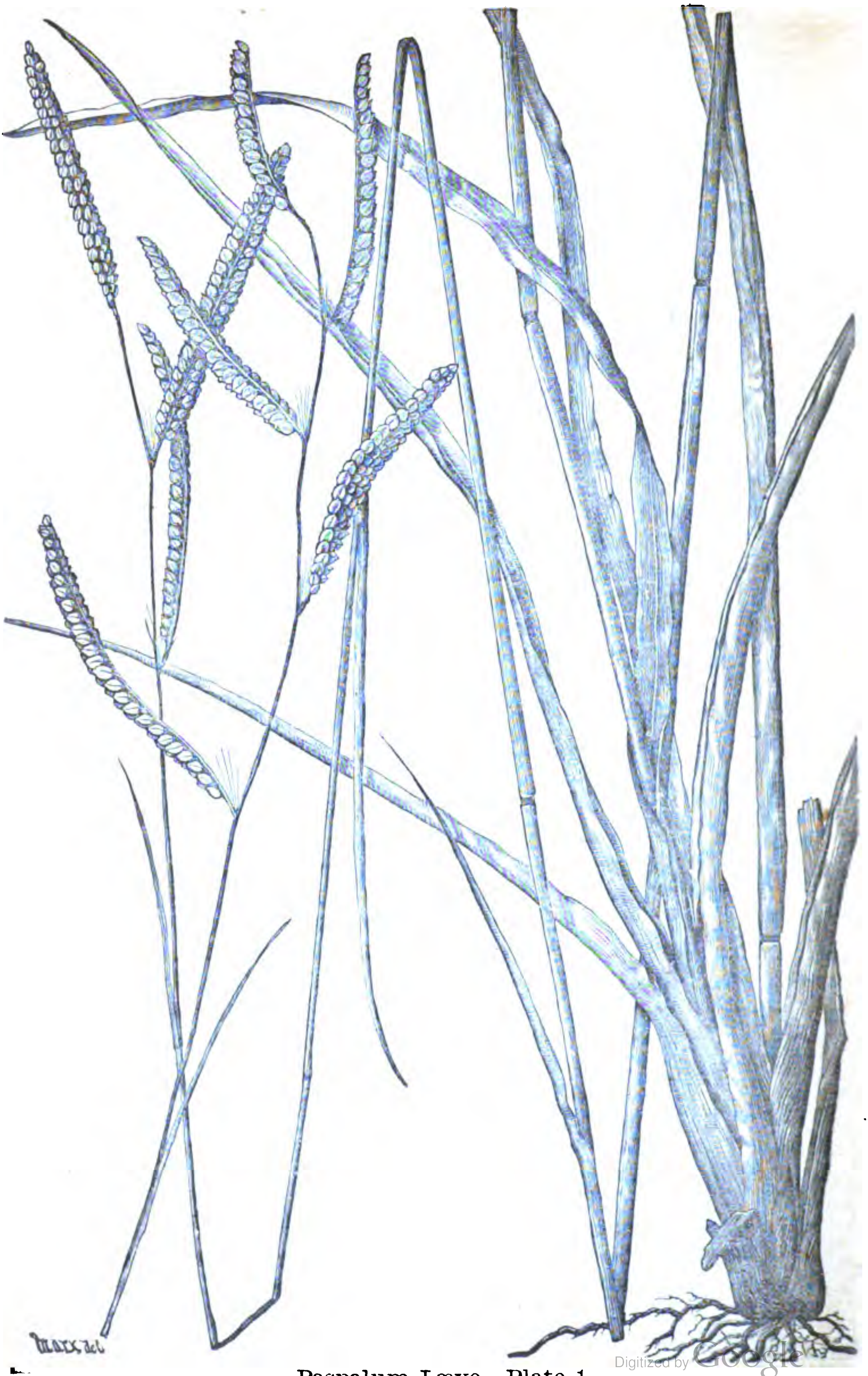
The letter W, Winter growing grasses.

The letter S, Summer growing.

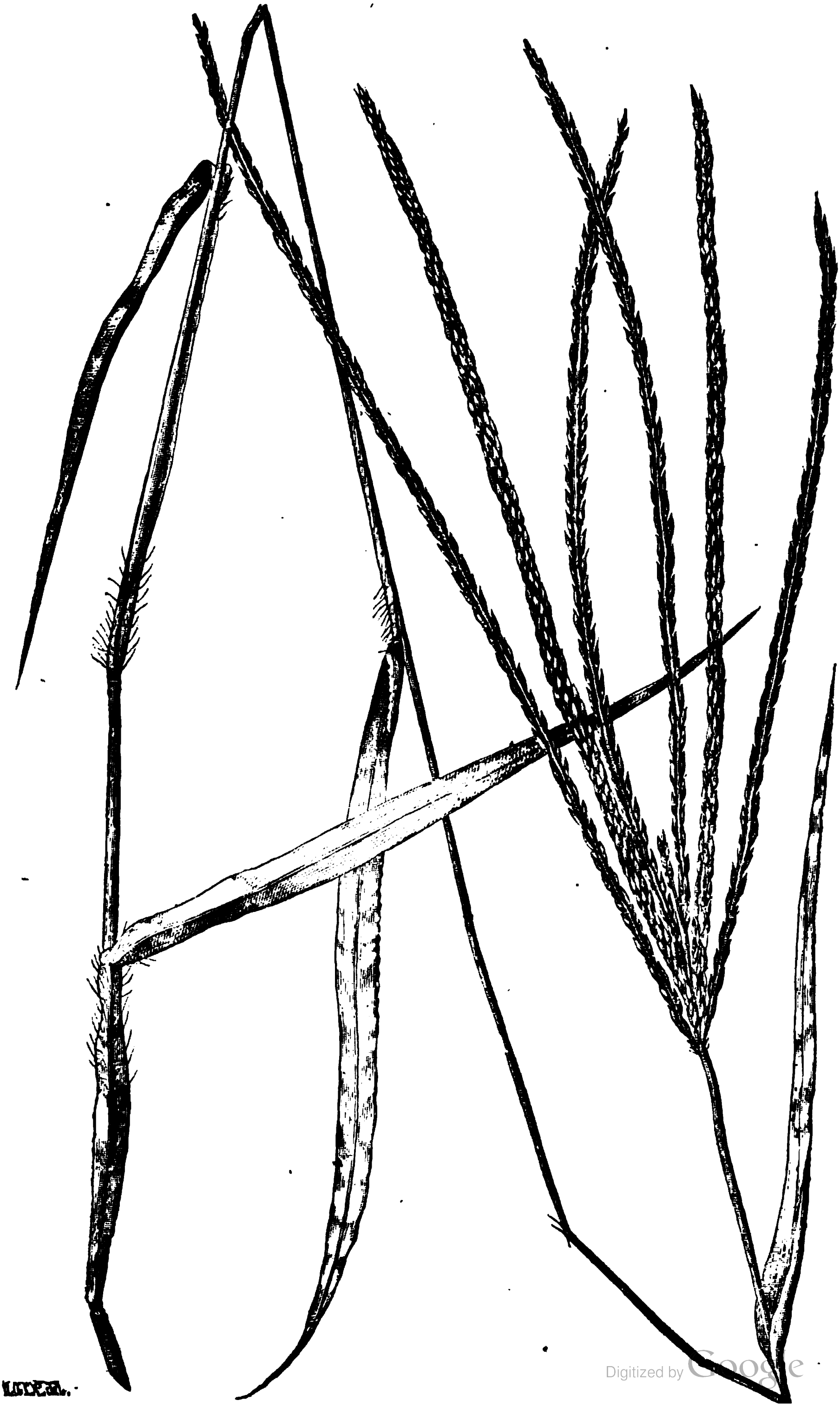
The letter N, native grasses, or such naturalized species as sow their seeds and take care of themselves.

The letter C, those which need cultivation, at least planting in the first instance.

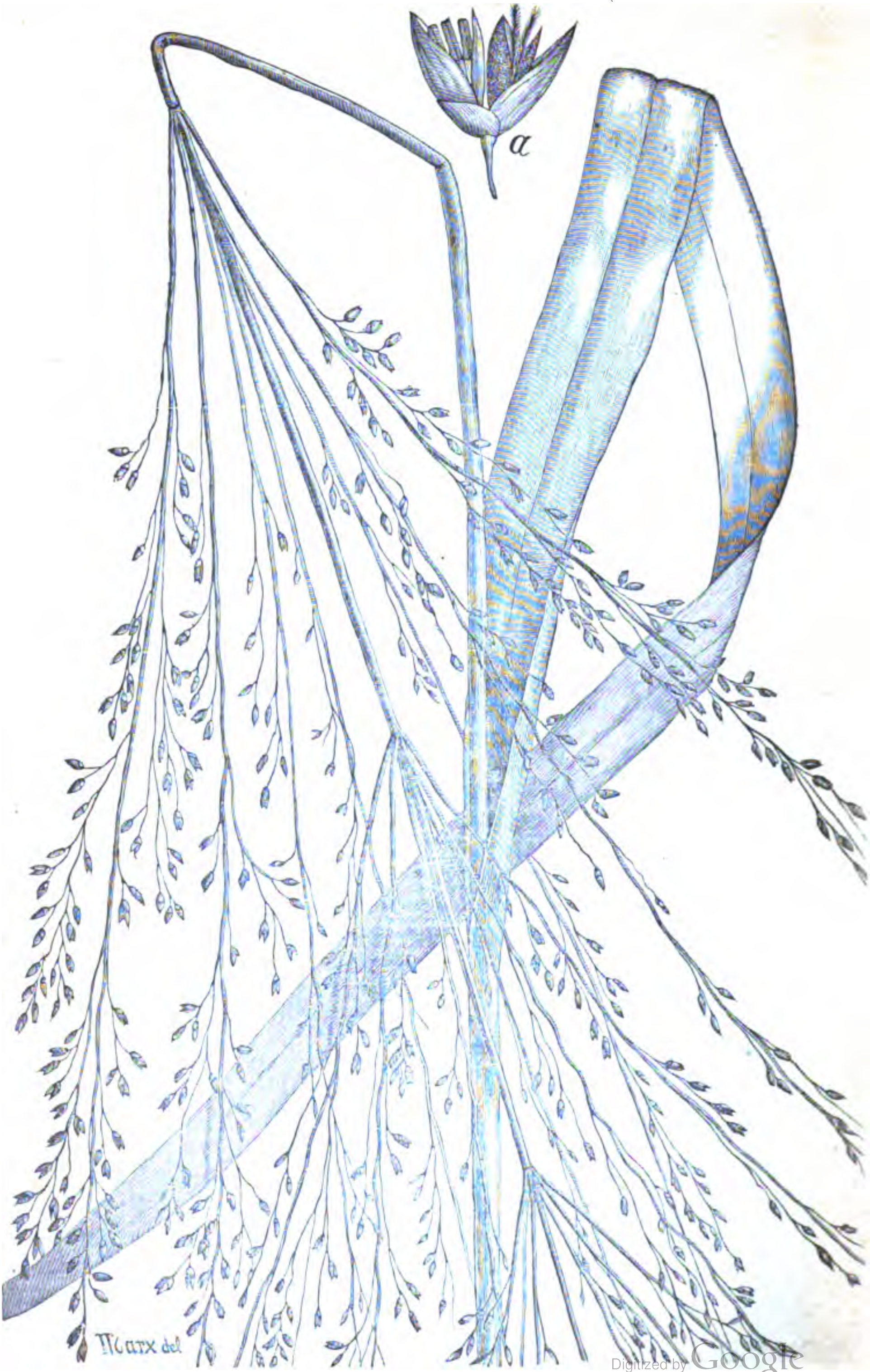
Paspalum læve	P.	N.	S.
Paspalum distichum	P.	N.	S.
Panicum sanguinale	A.	N.	S.
P. jumentorum	P.	C.	S.
P. Texana	A.	N.	S.
P. crus-galli	A.	N.	S.
P. gibbum	A.	N.	S.
Setaria Italica	A.	C.	S.
Pennicillium spicatum	A.	C.	S.
Tripsacum dactyloides	P.	N.	S.
Andropogon virginicus	P.	N.	S.
A. scoparius	P.	N.	S.
A. macrourus	P.	N.	S.
Sorghum Halapense	P.	C.	S.
Phalaris intermedia	A.	C.	W.
Sporobolus Indicus	P.	N.	S.
Phleum pratense	P.	C.	S.
Agrostis vulgaris	P.	C.	S.
Arrhenatherum avenaceum	P.	C.	W.
Cynodon dactylon	P.	C.	S.
Eleusine Indica	A	N.	S.
E. Ægyptiacum	A.	N.	S.
Eragrostis poacoides	A.	N.	S.
Dactylis glomerata	P.	C.	W.
Poa pratensis	P.	C.	W.
P. arachnifera	P.	C.	W.
Festuca elatior	P.	C.	W.
Bromus secalinus	A.	C.	W.
B. unioloides	A.	C.	W.
Elymus Virginicus	P.	N.	W.
E. striatus	P.	N.	W.
E. canadense	P.	N.	W.



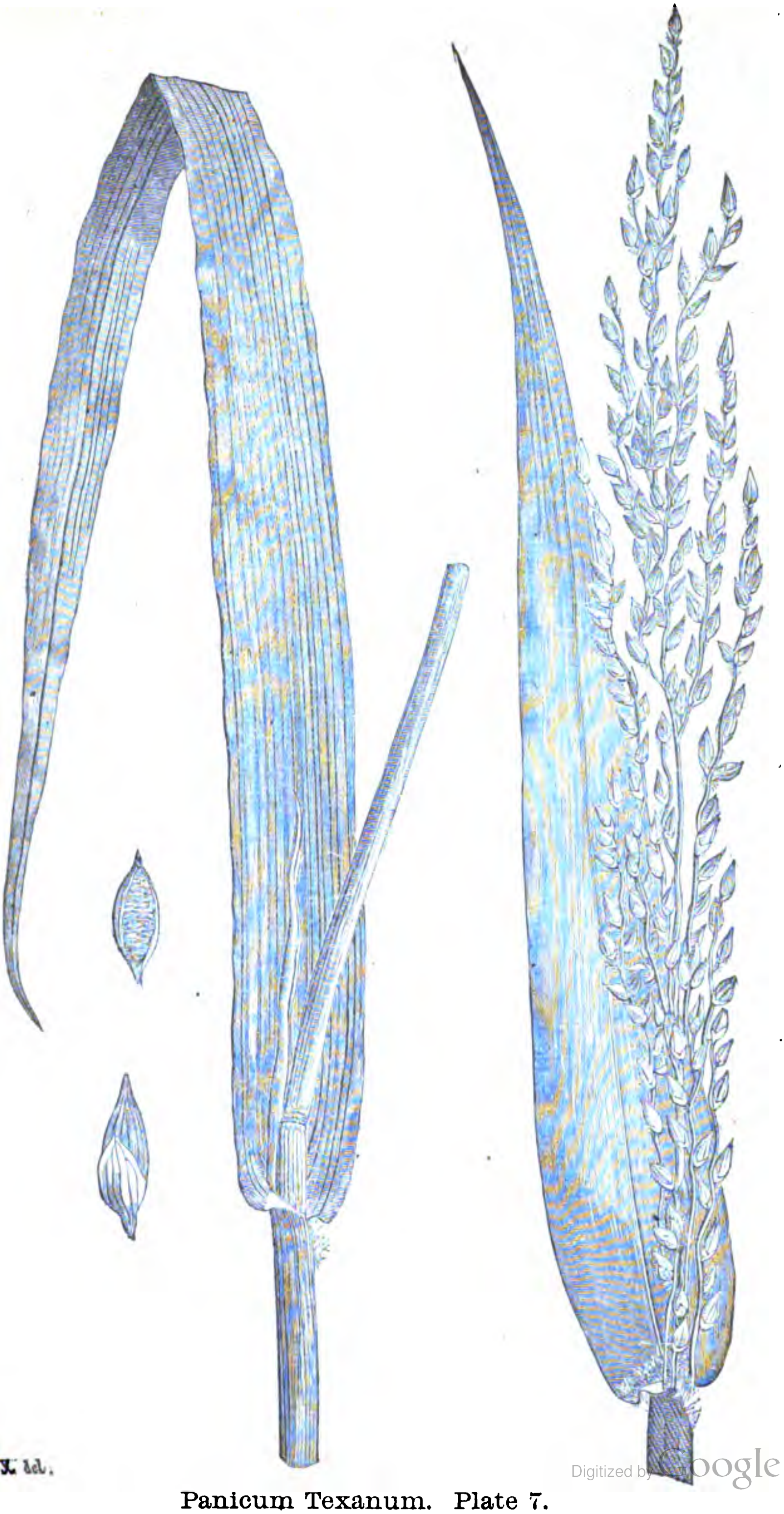
Paspalum Læve. Plate 1.



Panicum Sanguinale. Plate 4.



Panicum Jumentorum. Plate 5.



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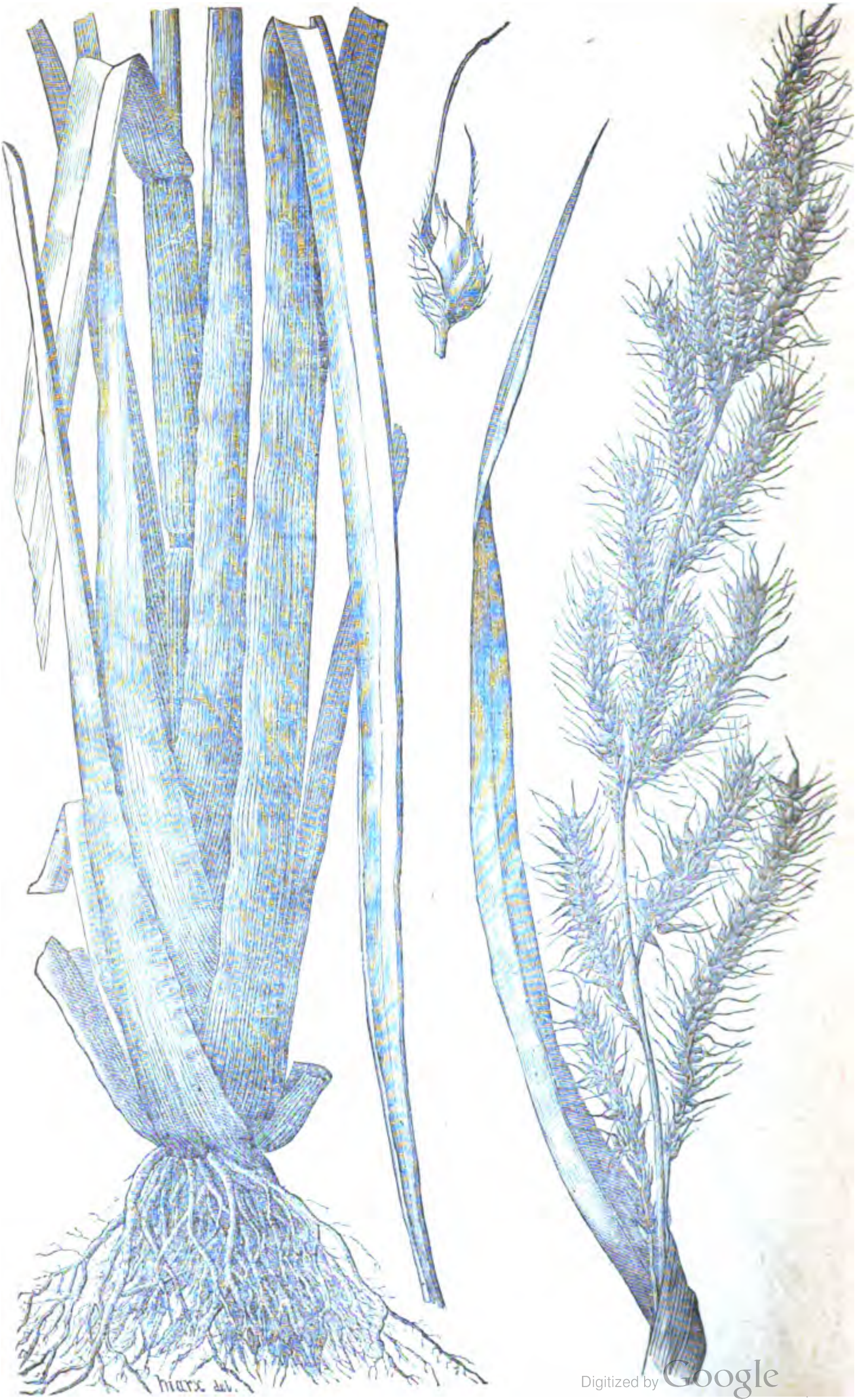
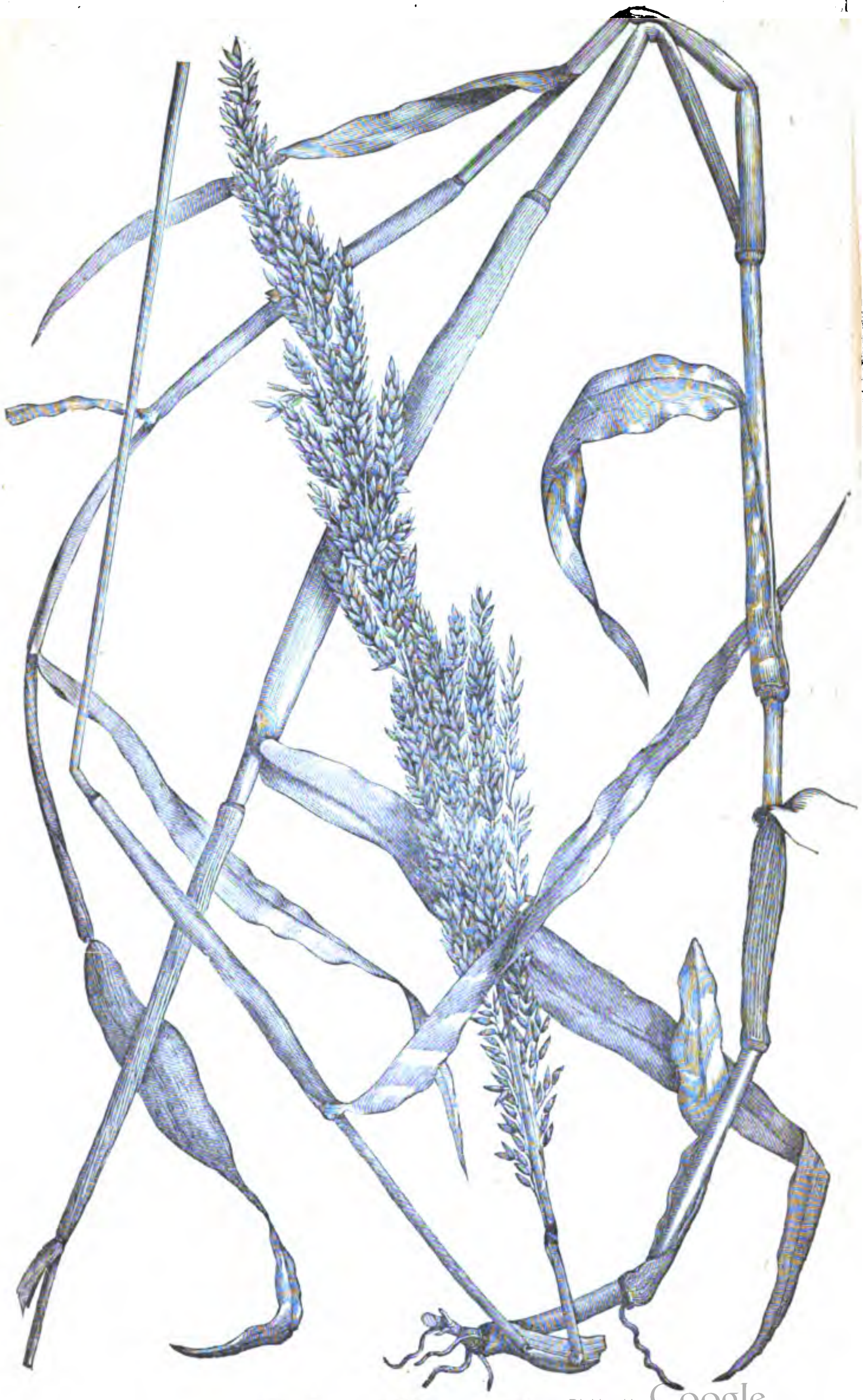
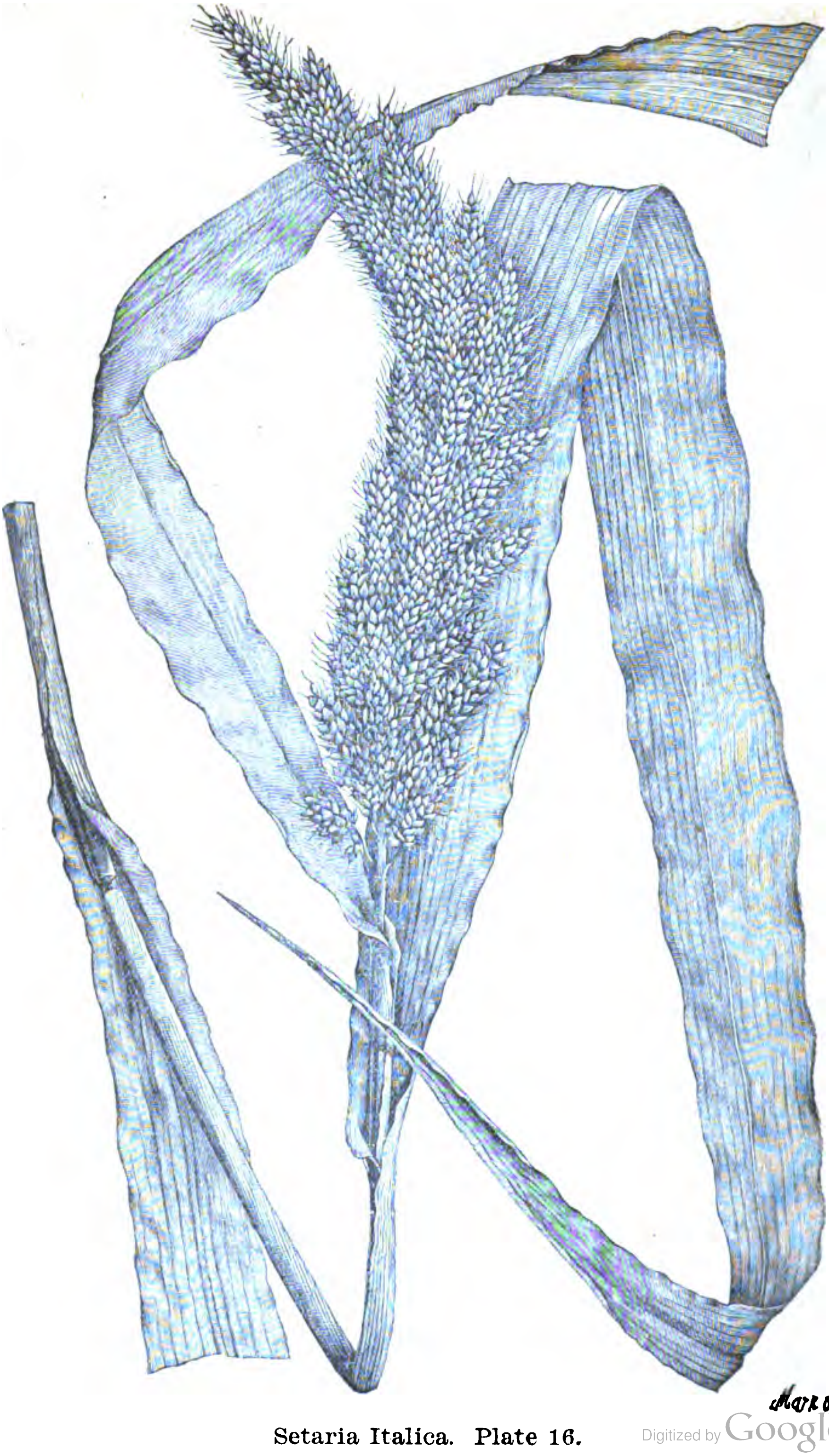
Panicum Texanum. Plate 7.



Panicum Crus Galli. Plate 11.

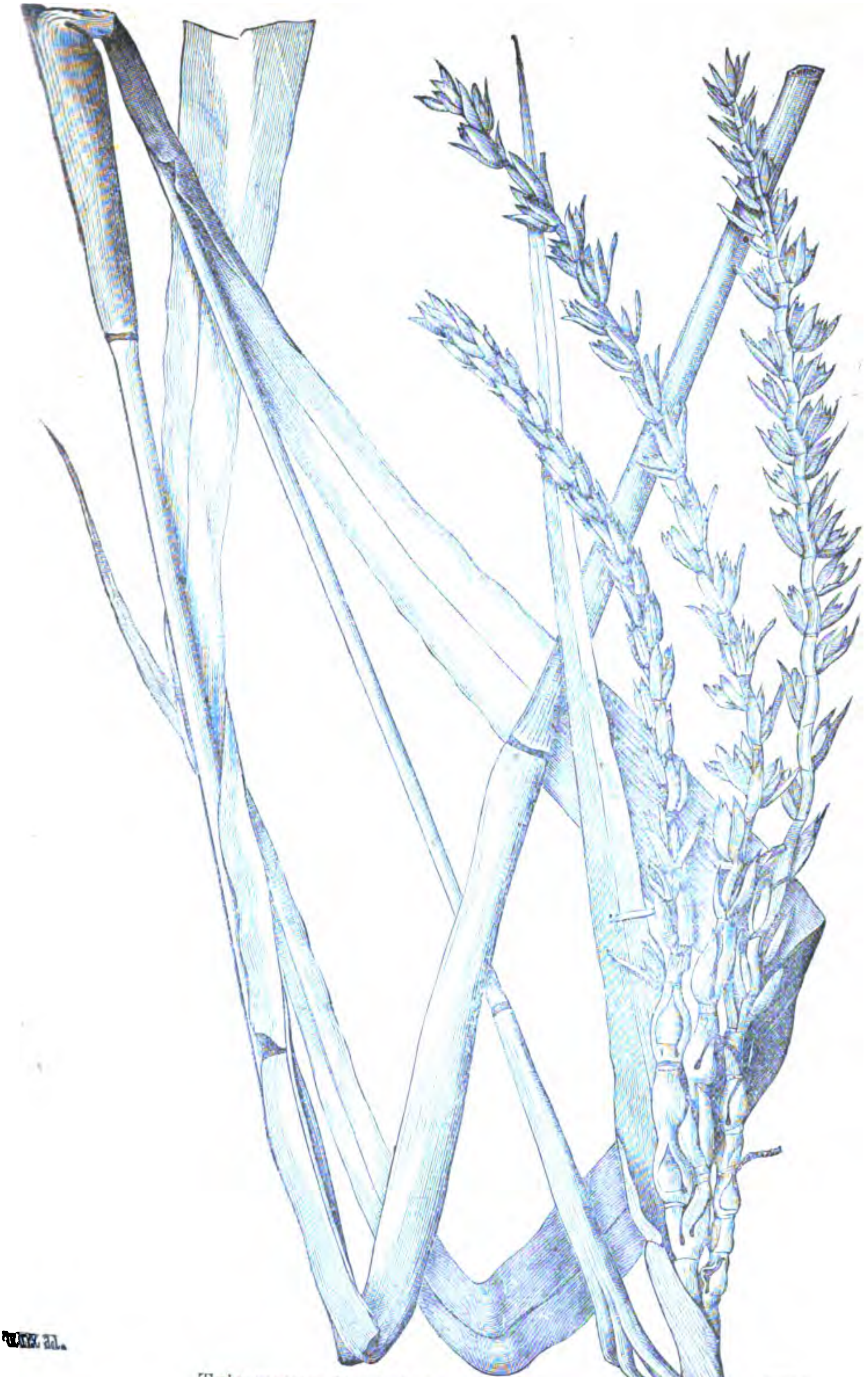


Panicum Gibbum. Plate 14.

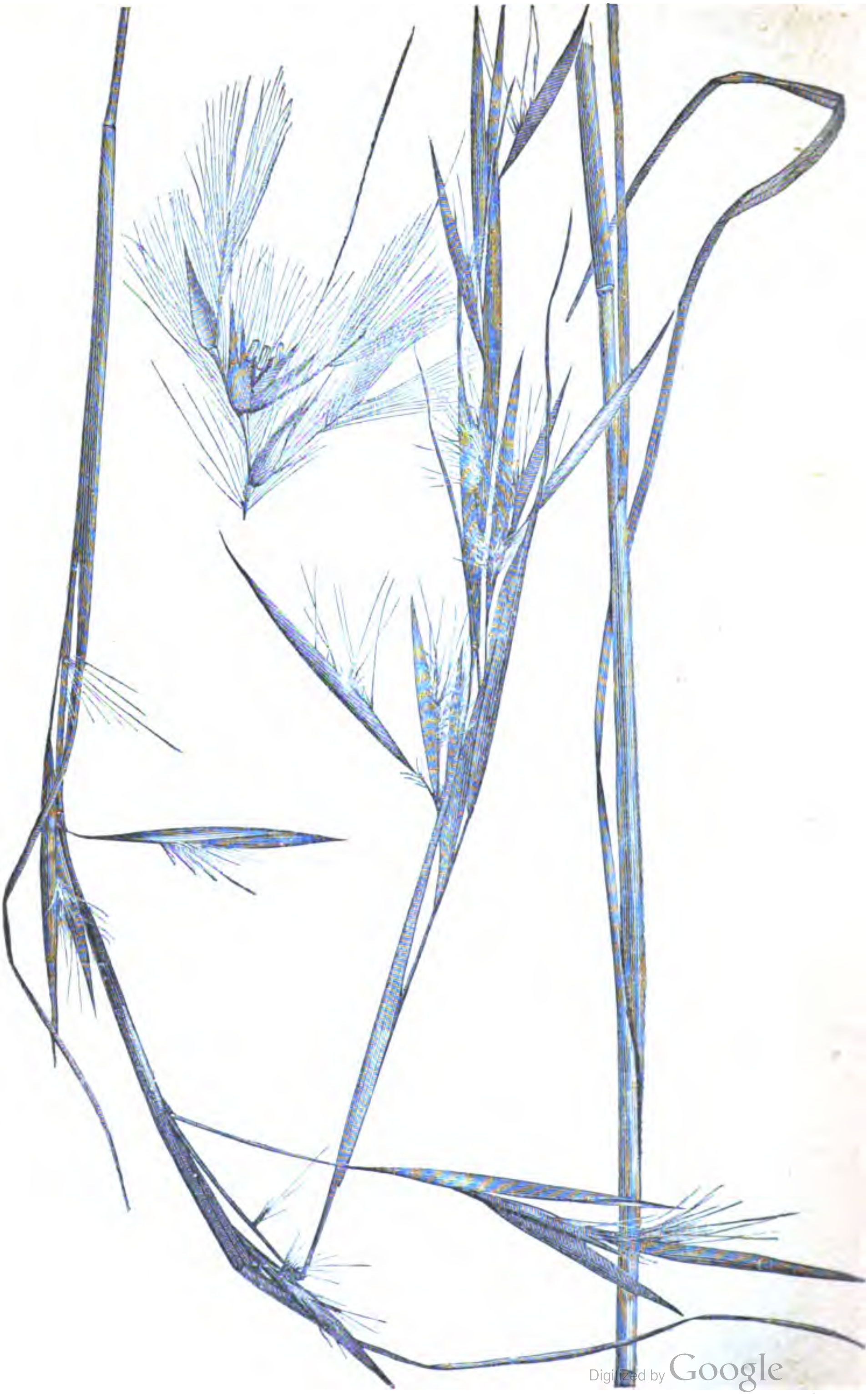


Marx del.

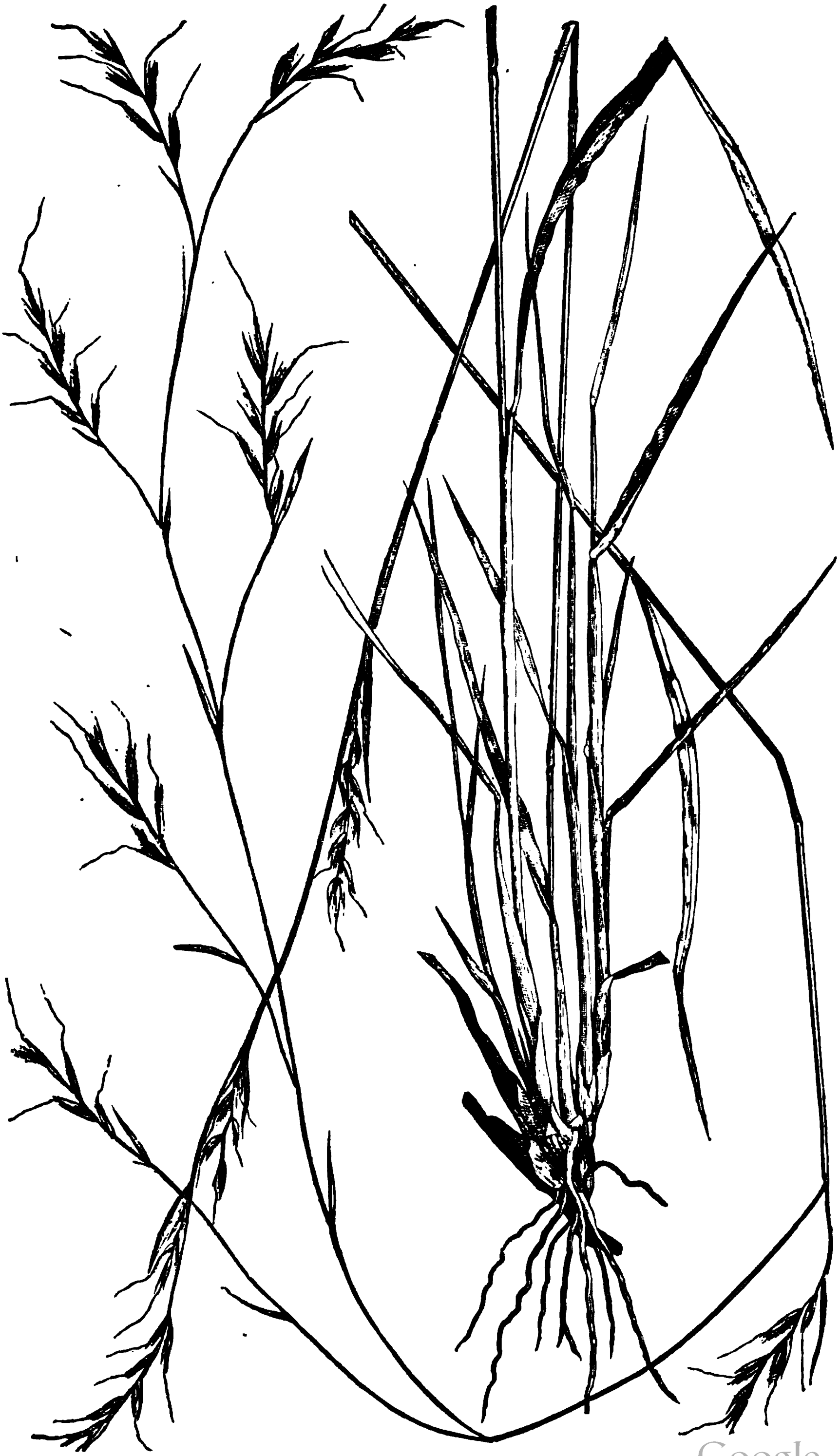
Setaria Italica. Plate 16.



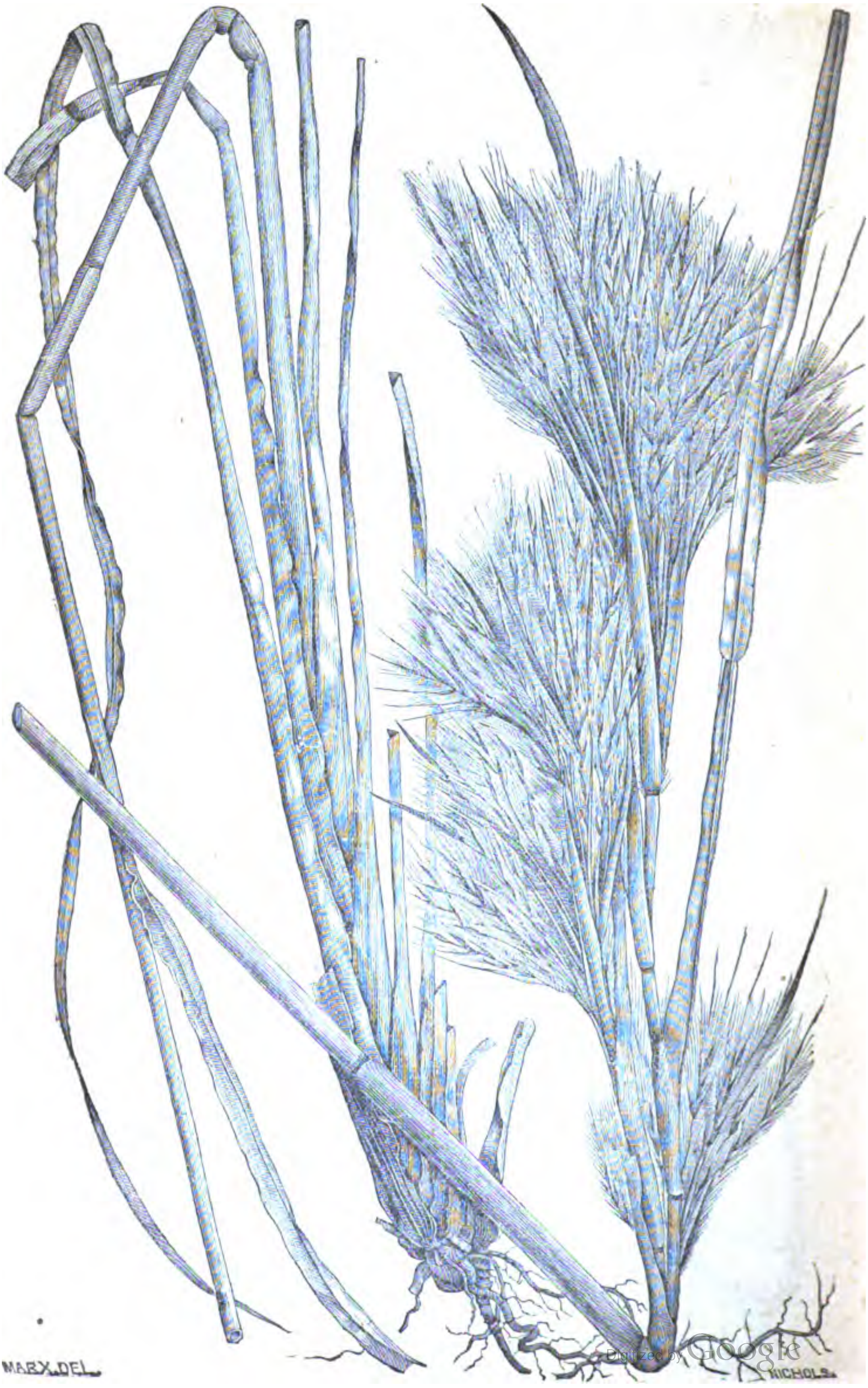
Tripsacum Dactyloides. Plate 21.



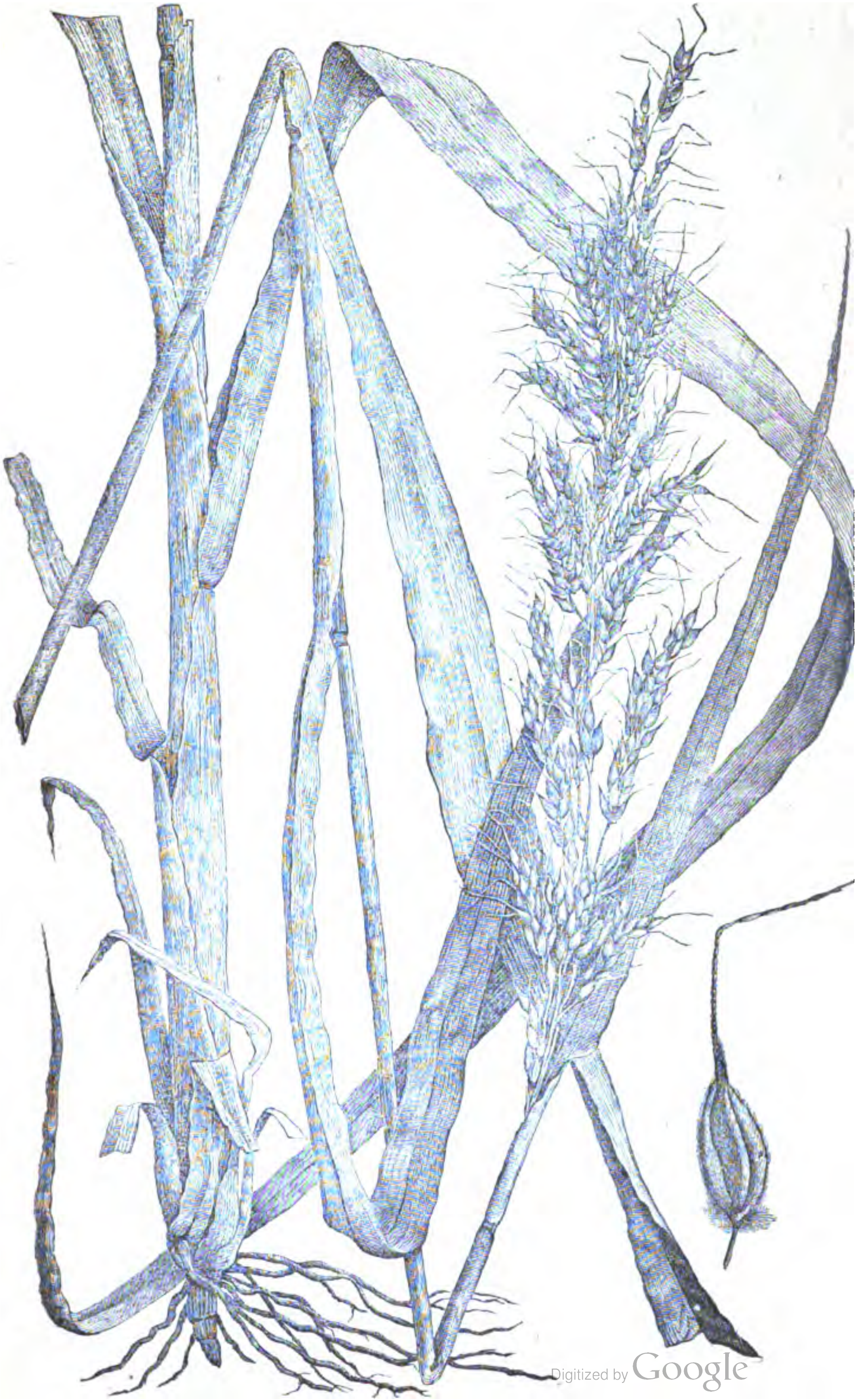
Andropogon Virginicus. Plate 24.



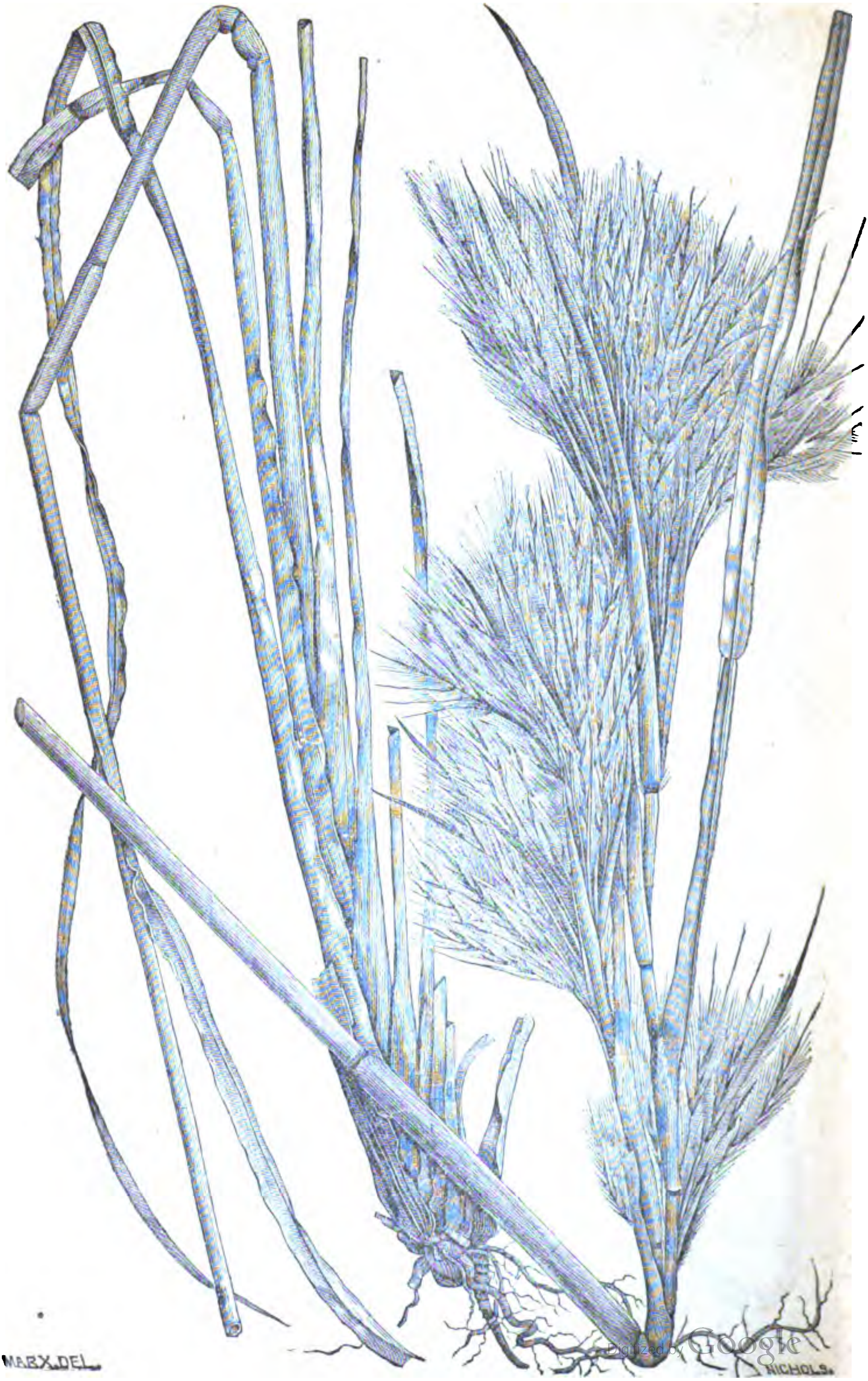
Andropogon Scoparius. Plate 25.



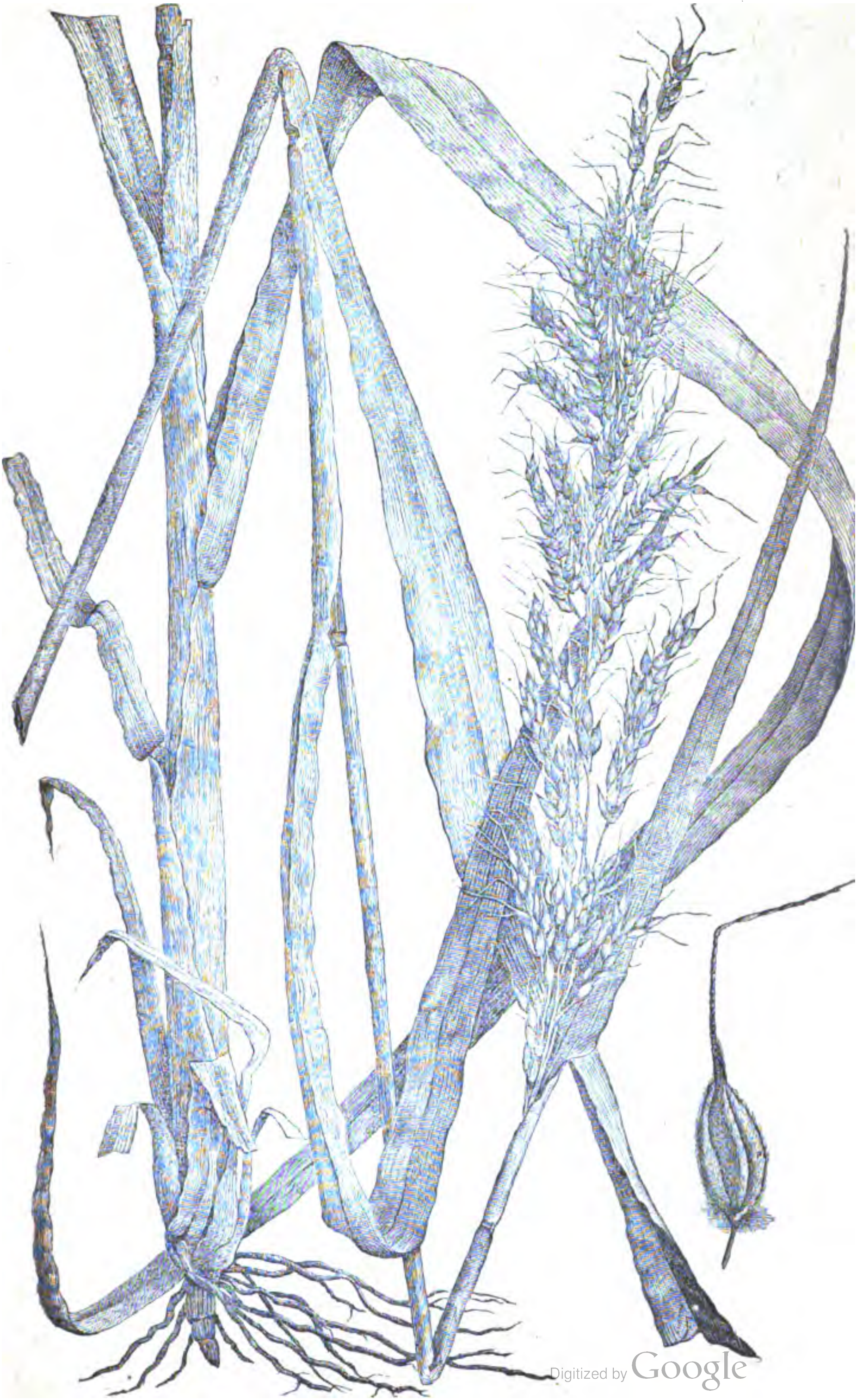
Andropogo Macrourus. Plate 26.



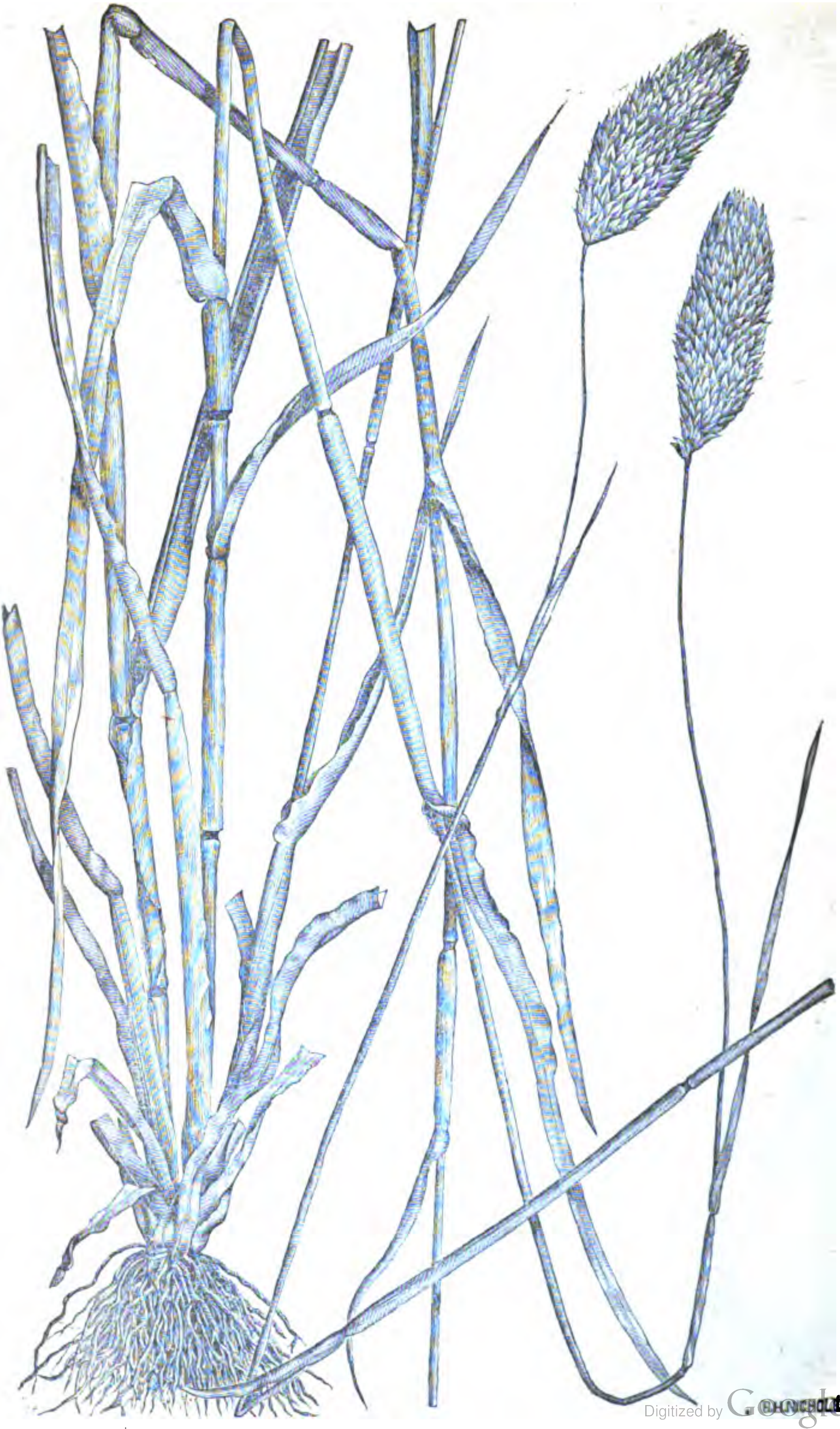
Sorghum Halapense. Plate 29.



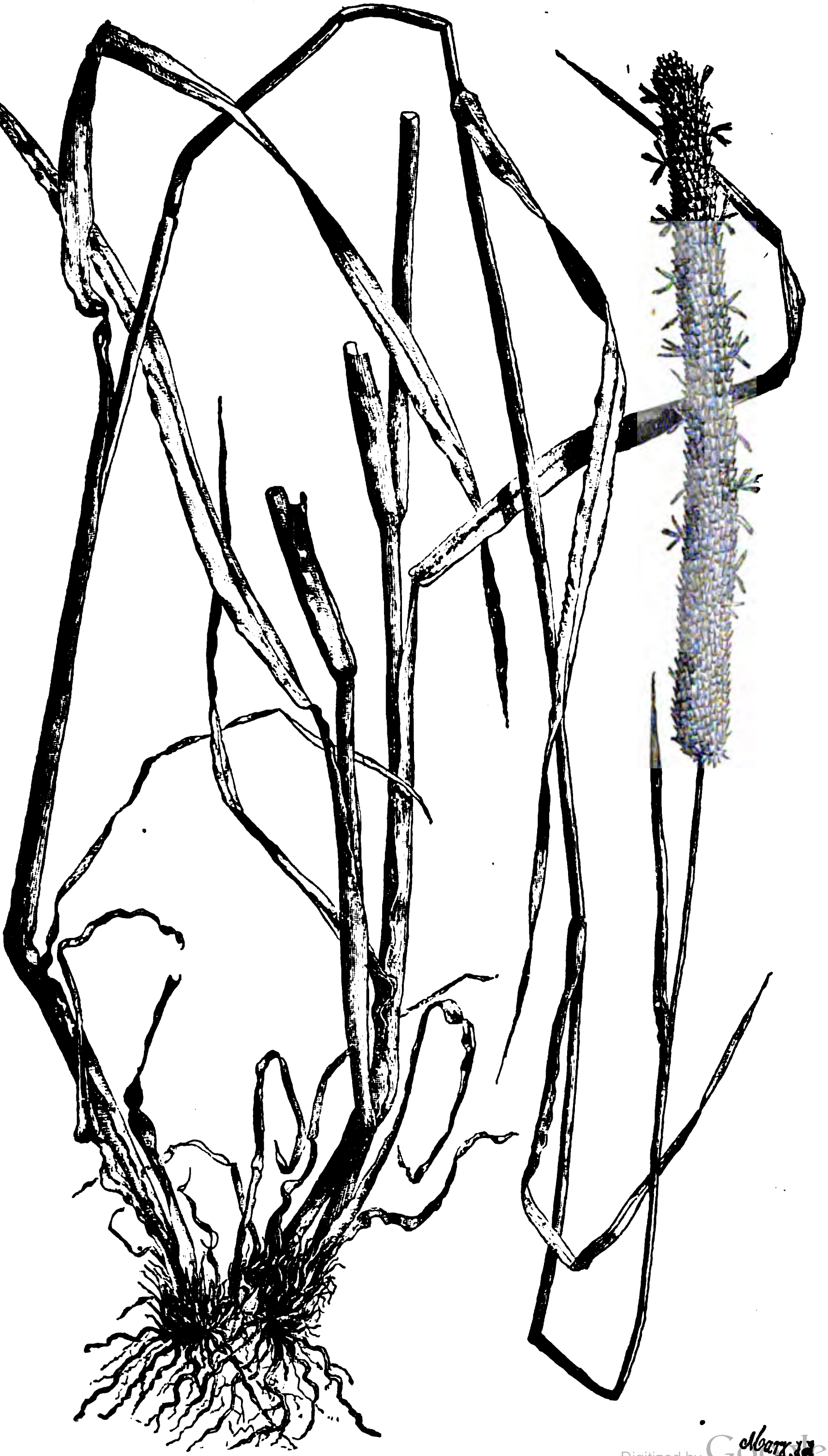
Andropogo Macrourus. Plate 26.



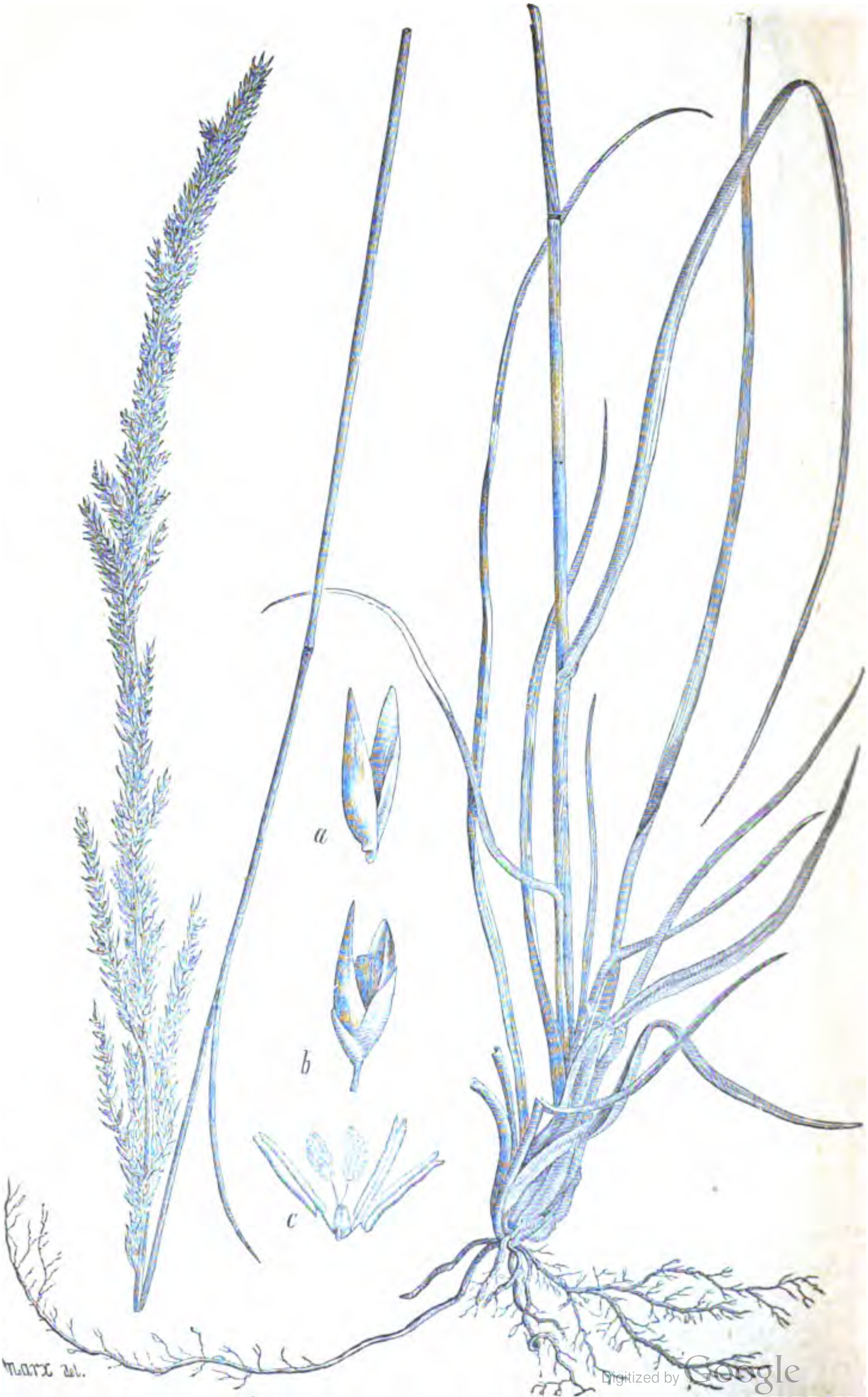
Sorghum Halapense. Plate 29.



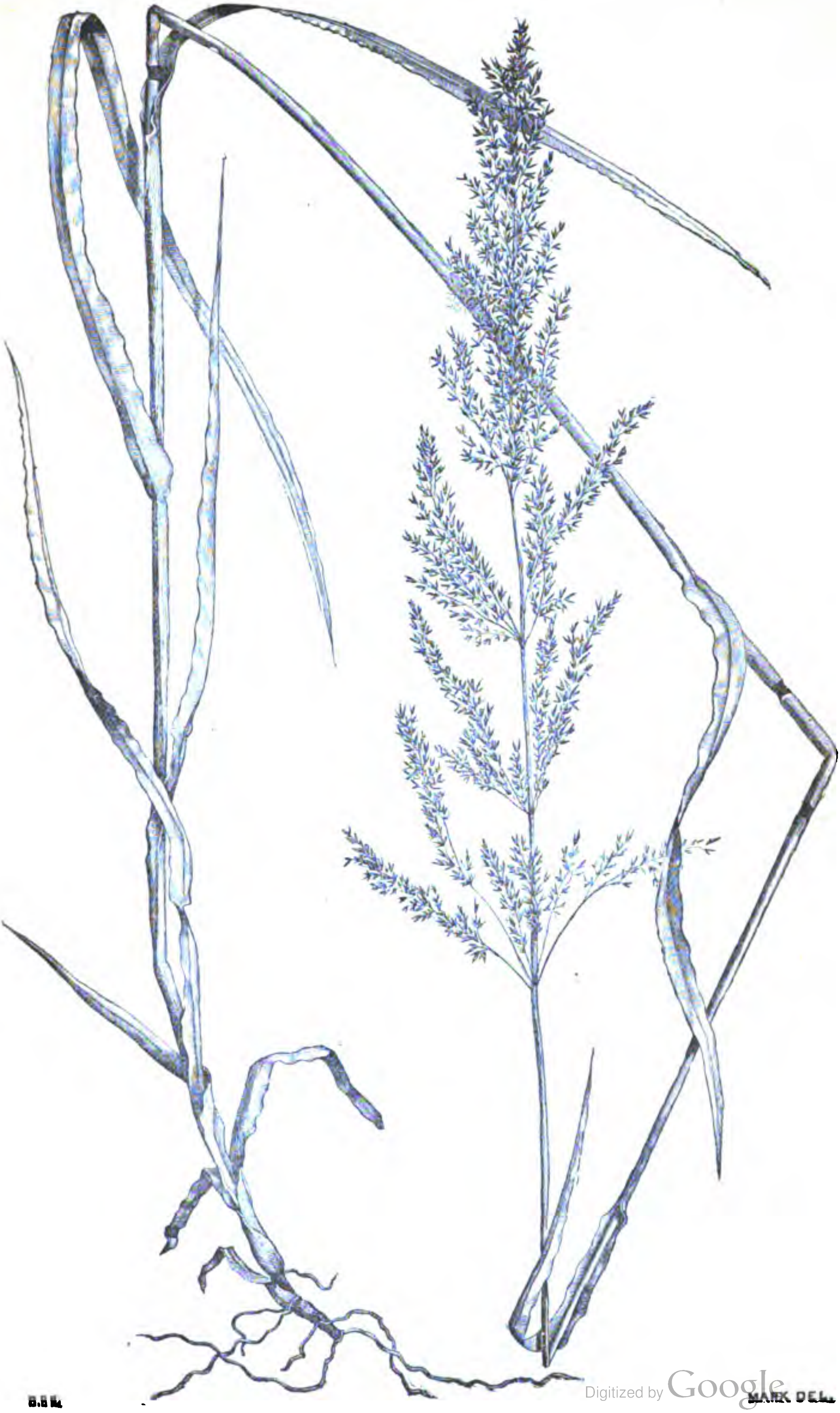
Phalaris Intermedia. Plate 31.



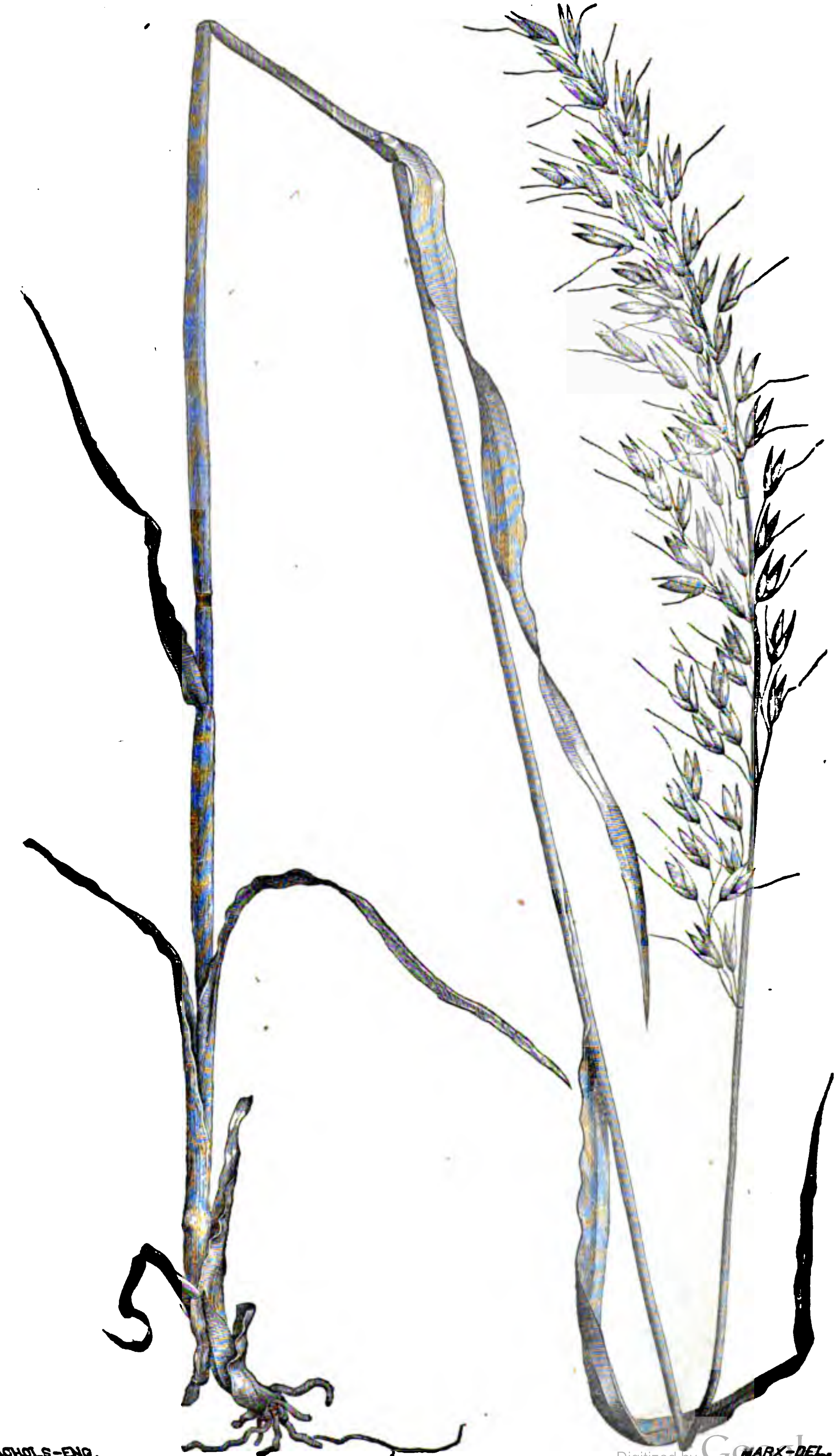
Phleum Pratense. Plate 49.



Sporobolus Indicus. **Plate 50.**



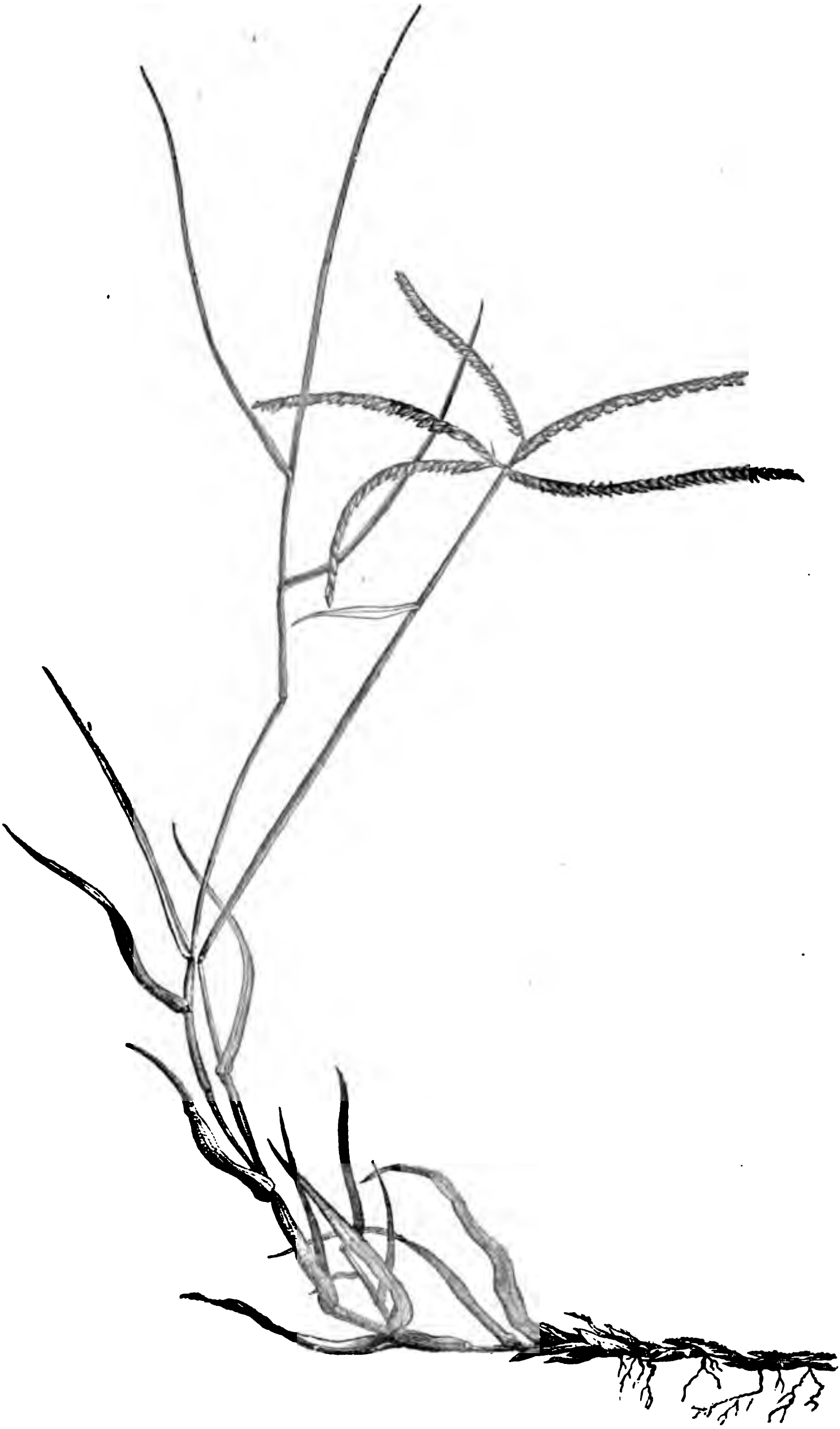
Agrostis Vulgaris. Plate 53.



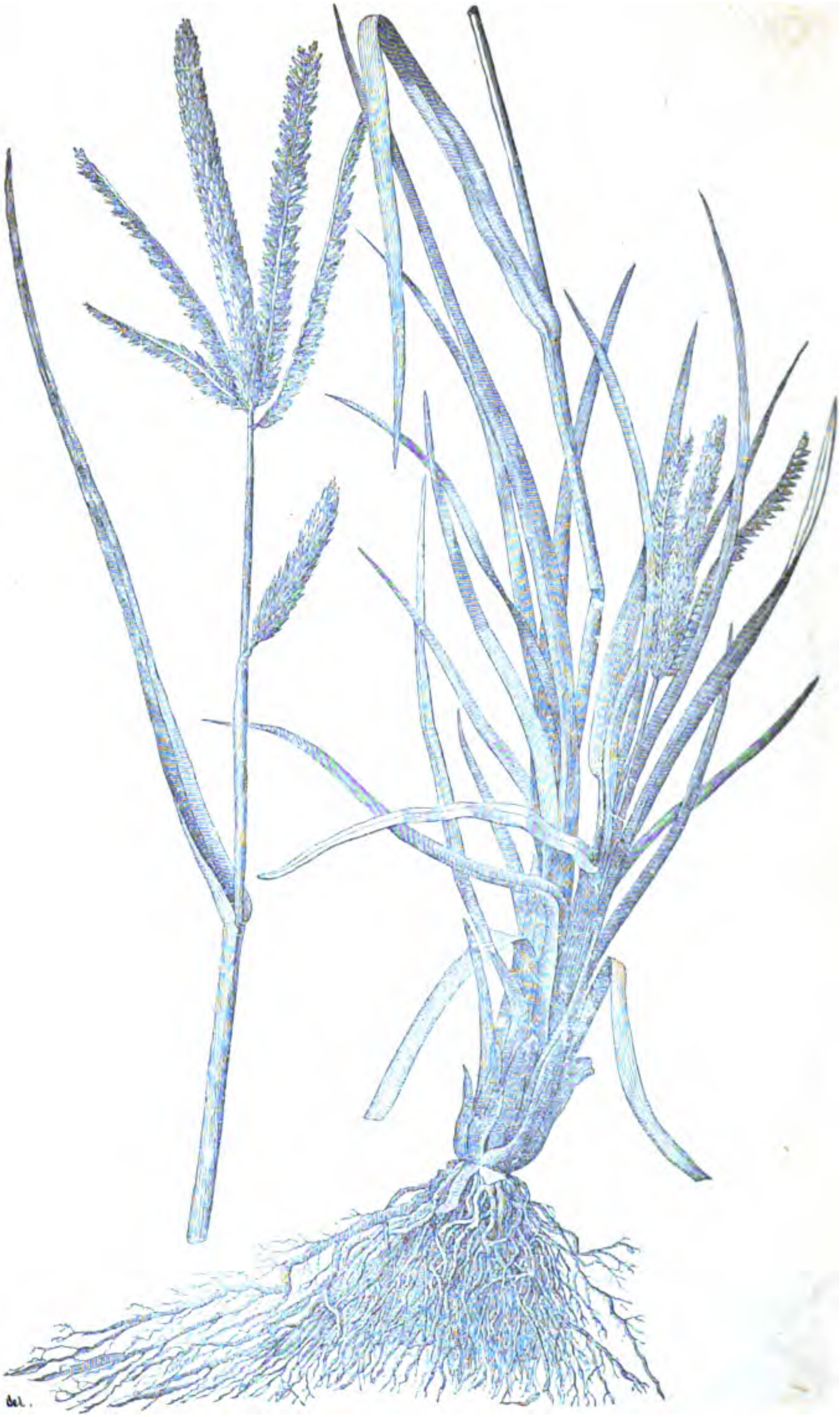
NICHOLS-ENG.

MARX-DEL.

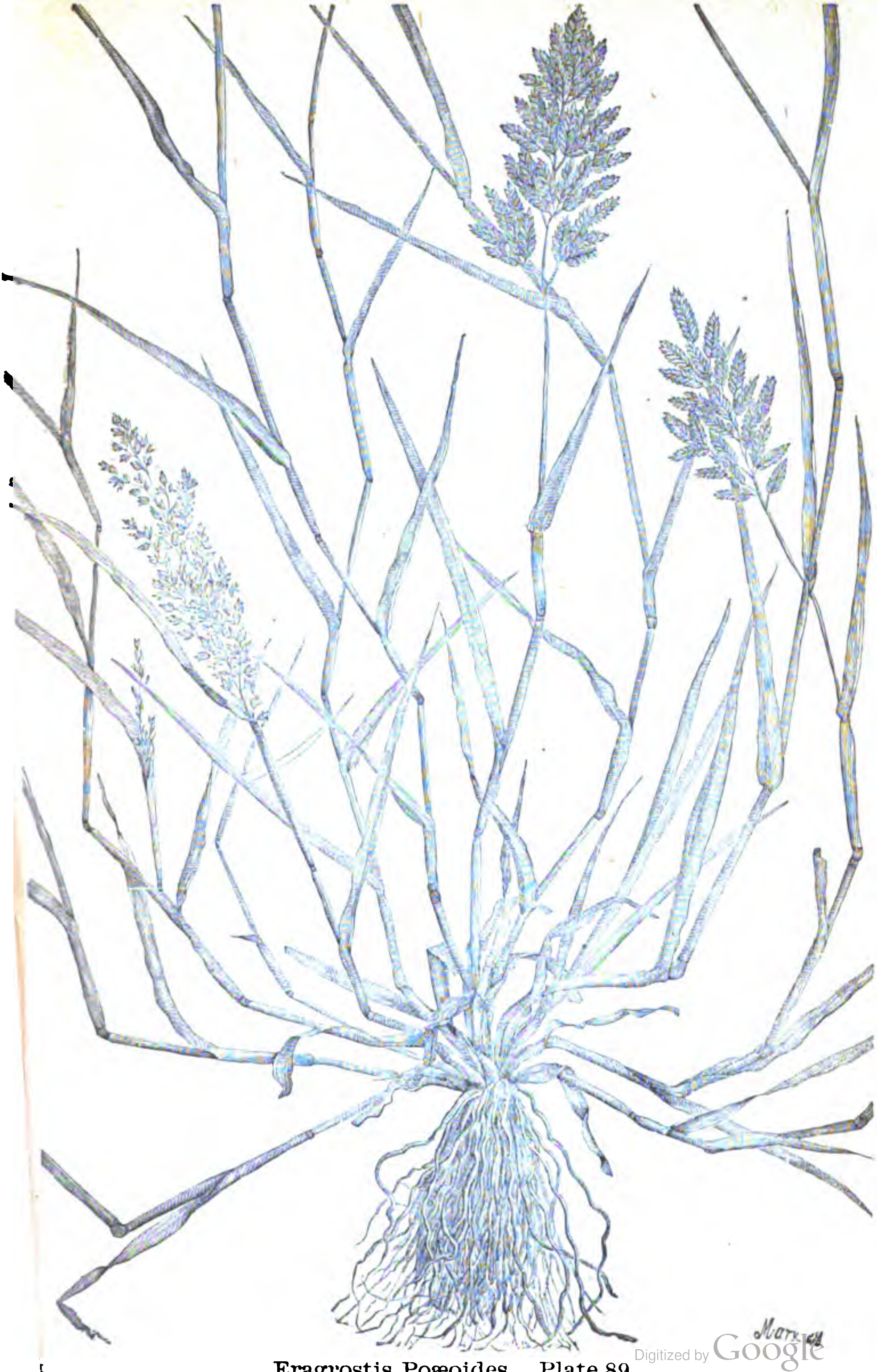
Arrhenatherum Avenaceum. Plate 70.



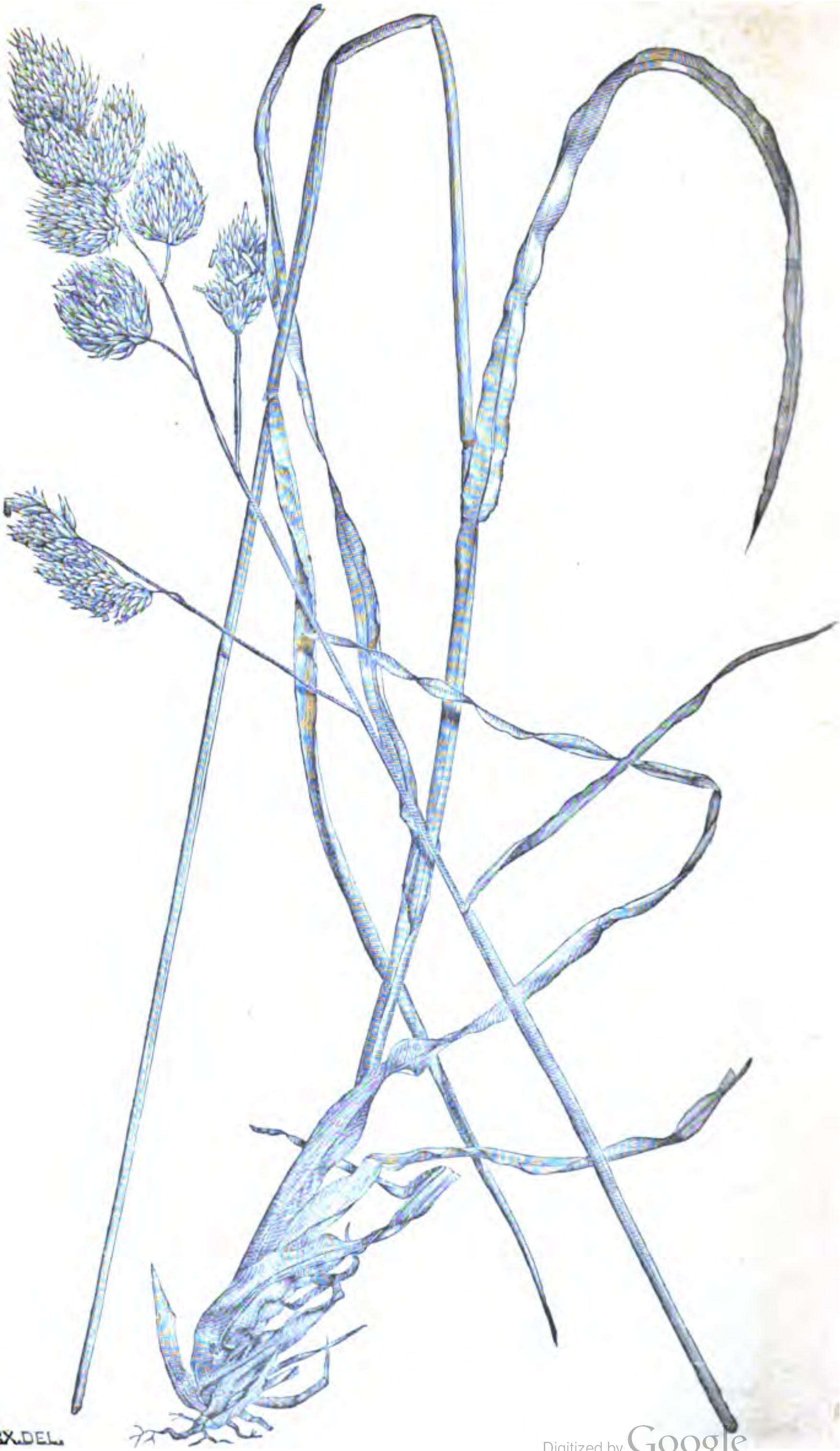
Cynodon Dactylon. Plate 75.



Eleusine Indica. Plate 79.

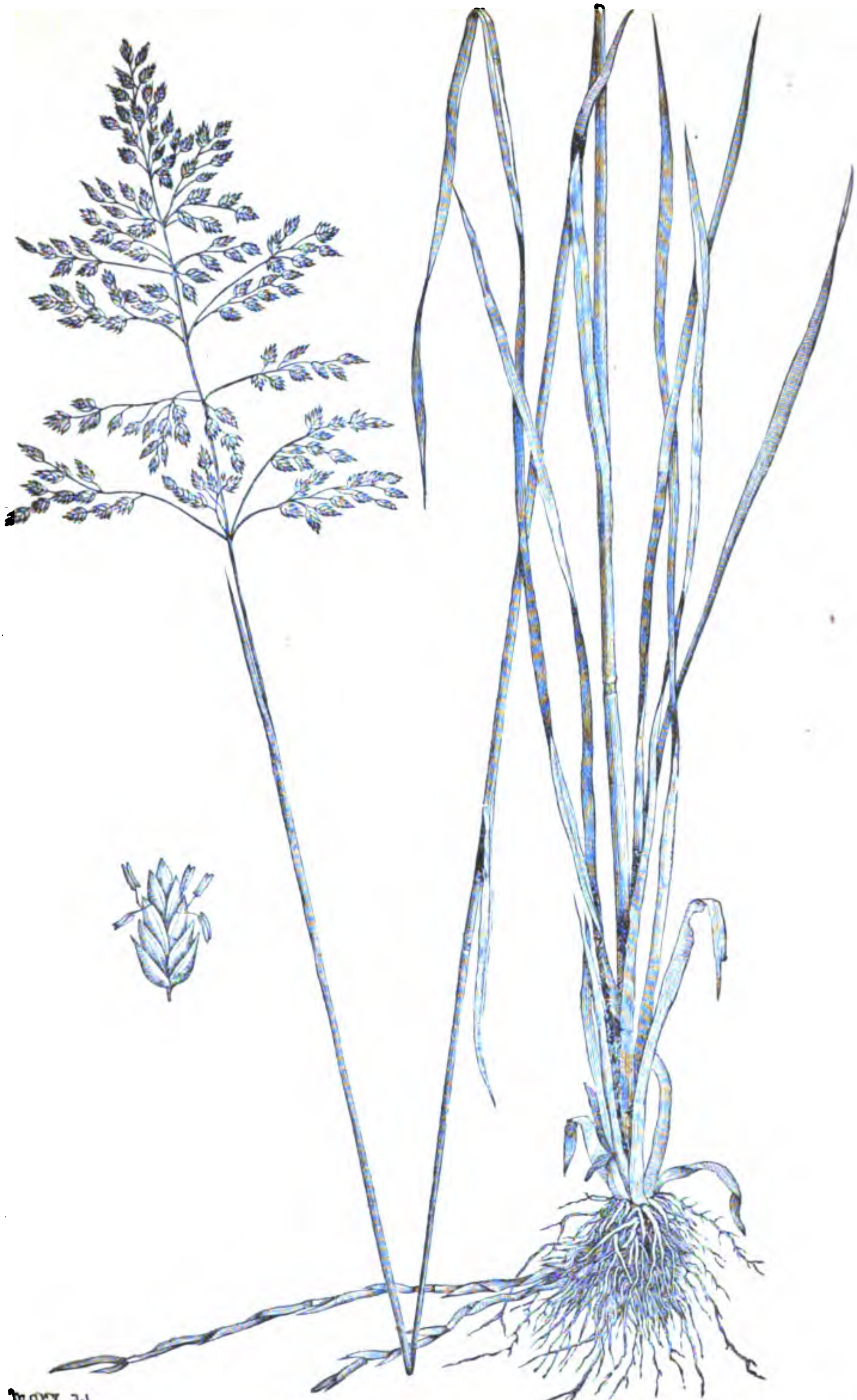


Eragrostis Poæoides.   Plate 89.



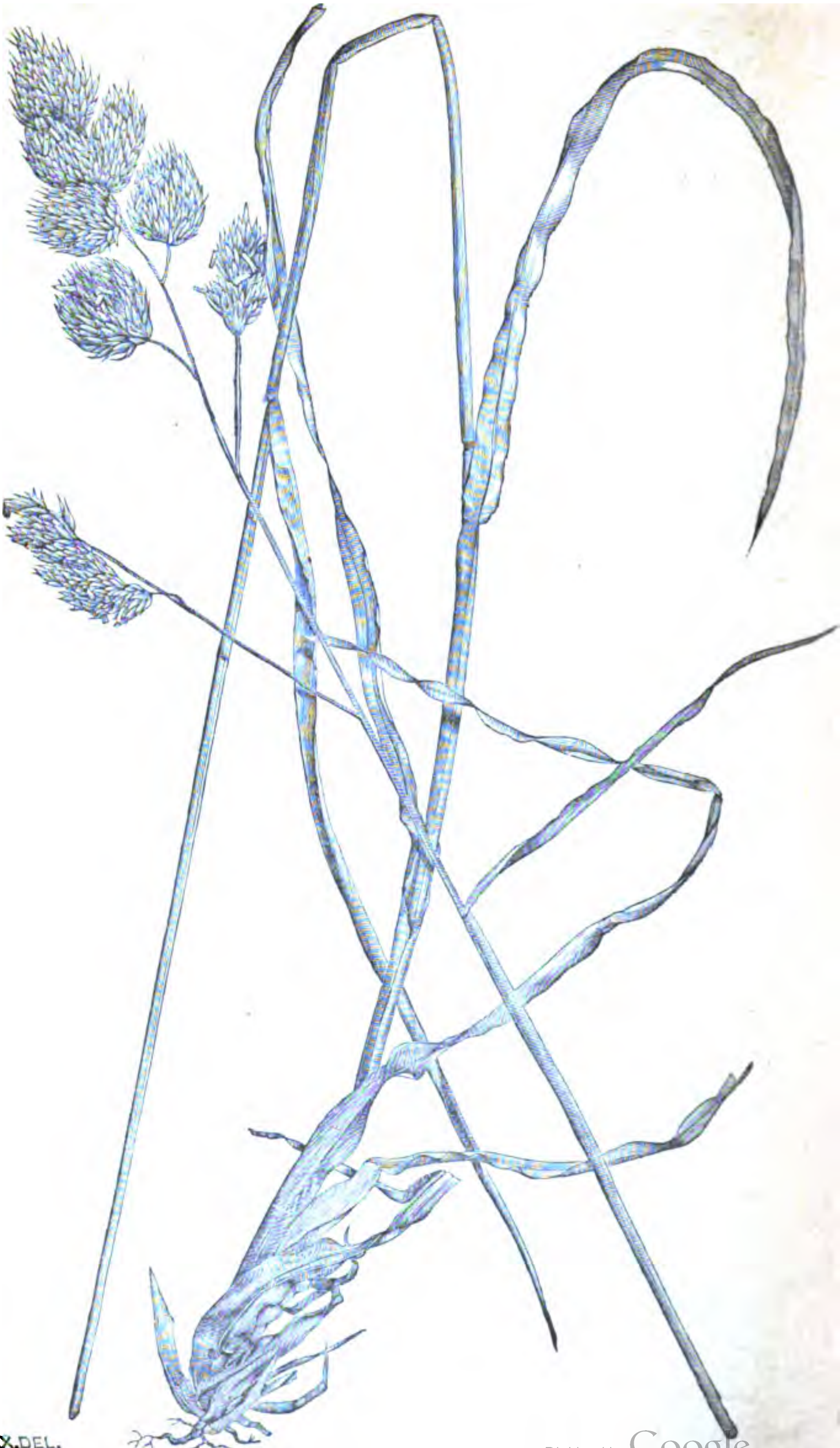
ABX.DEL.

Daetylis Glomerata. Plate 96.



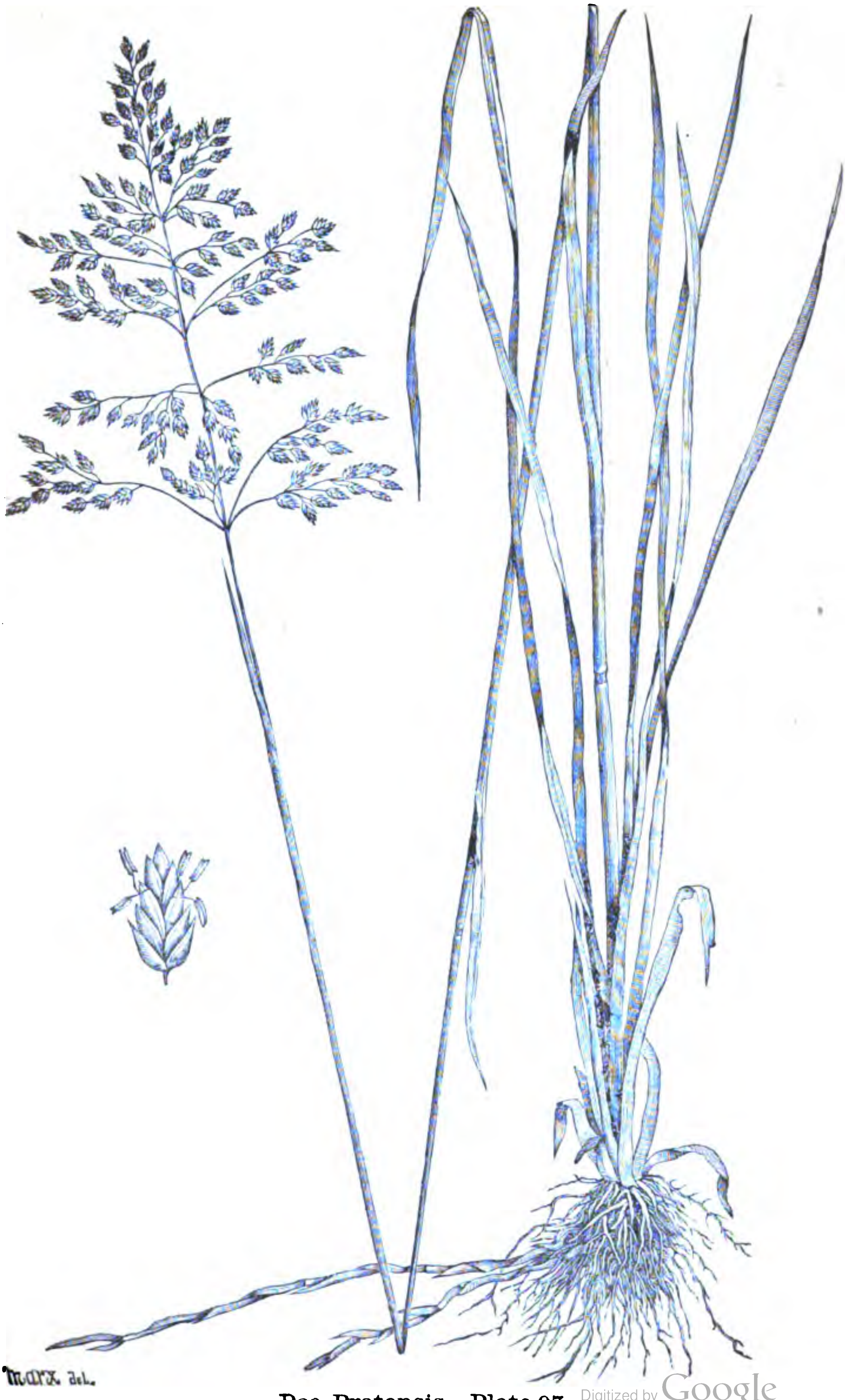
Marx del.

Poa Pratensis. Plate 97.



ABX.DEL.

Daetylis Glomerata. Plate 96.



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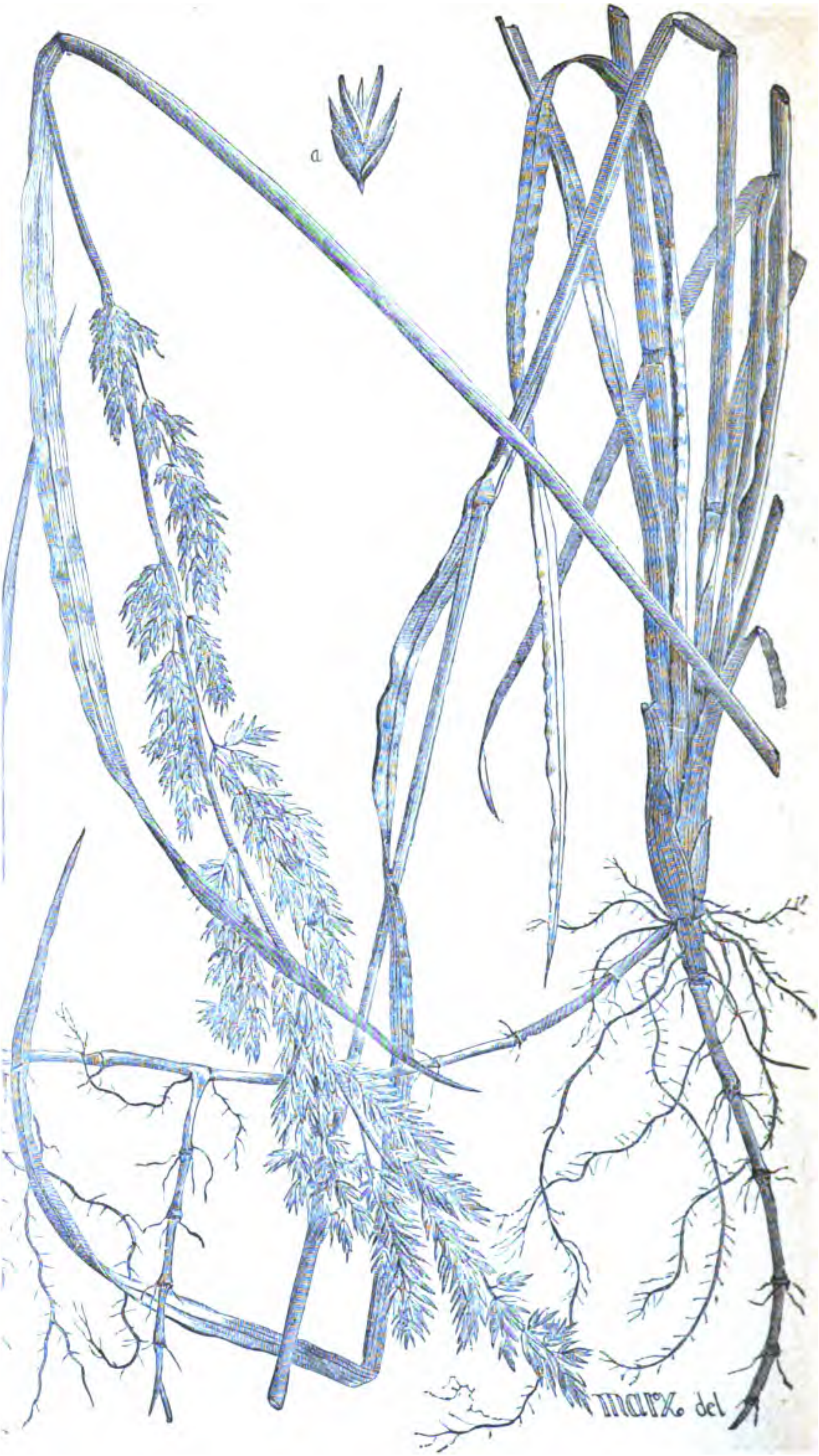
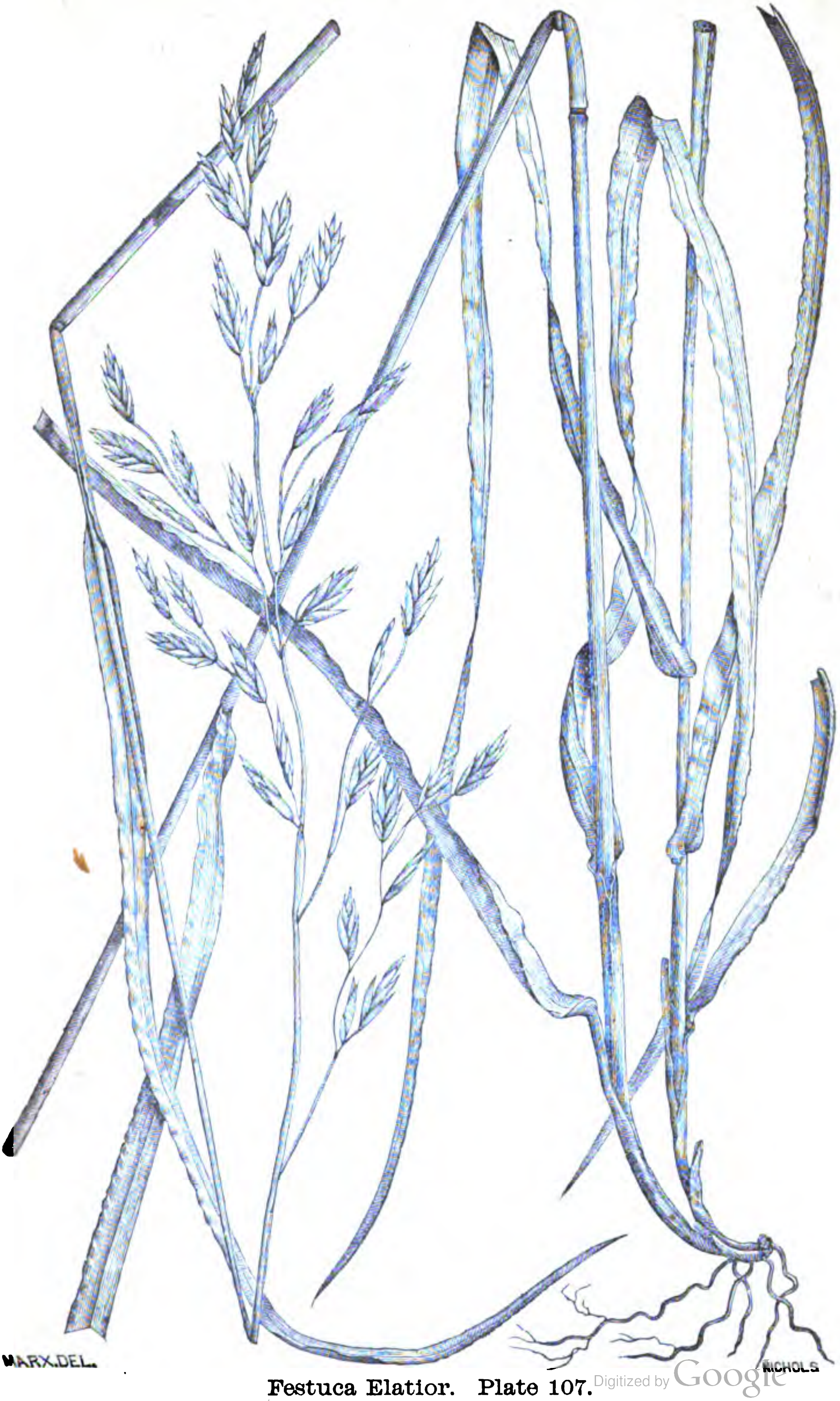
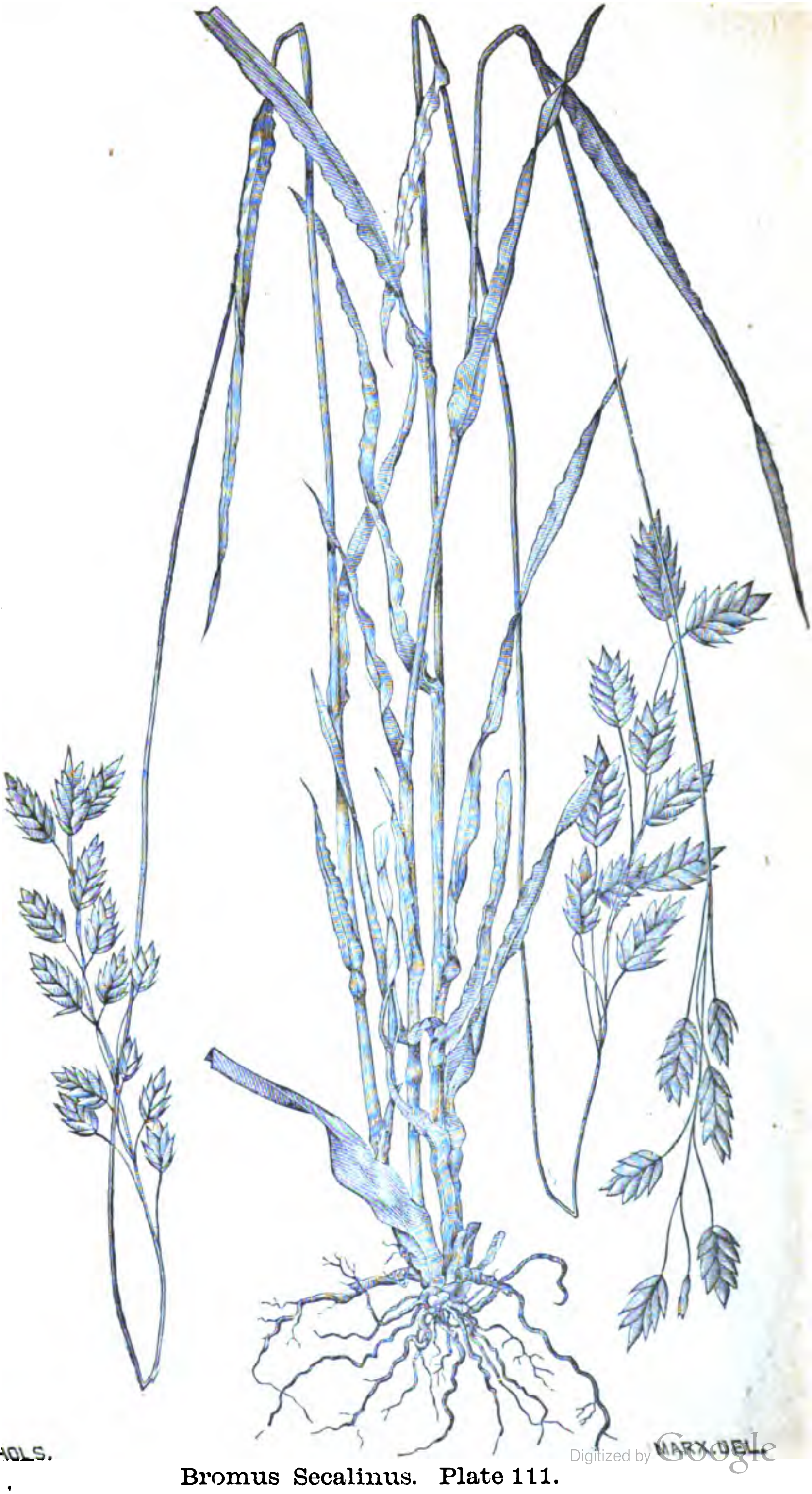
Poa Pratensis. Plate 97.



Poa Arachnifera. Plate 100.



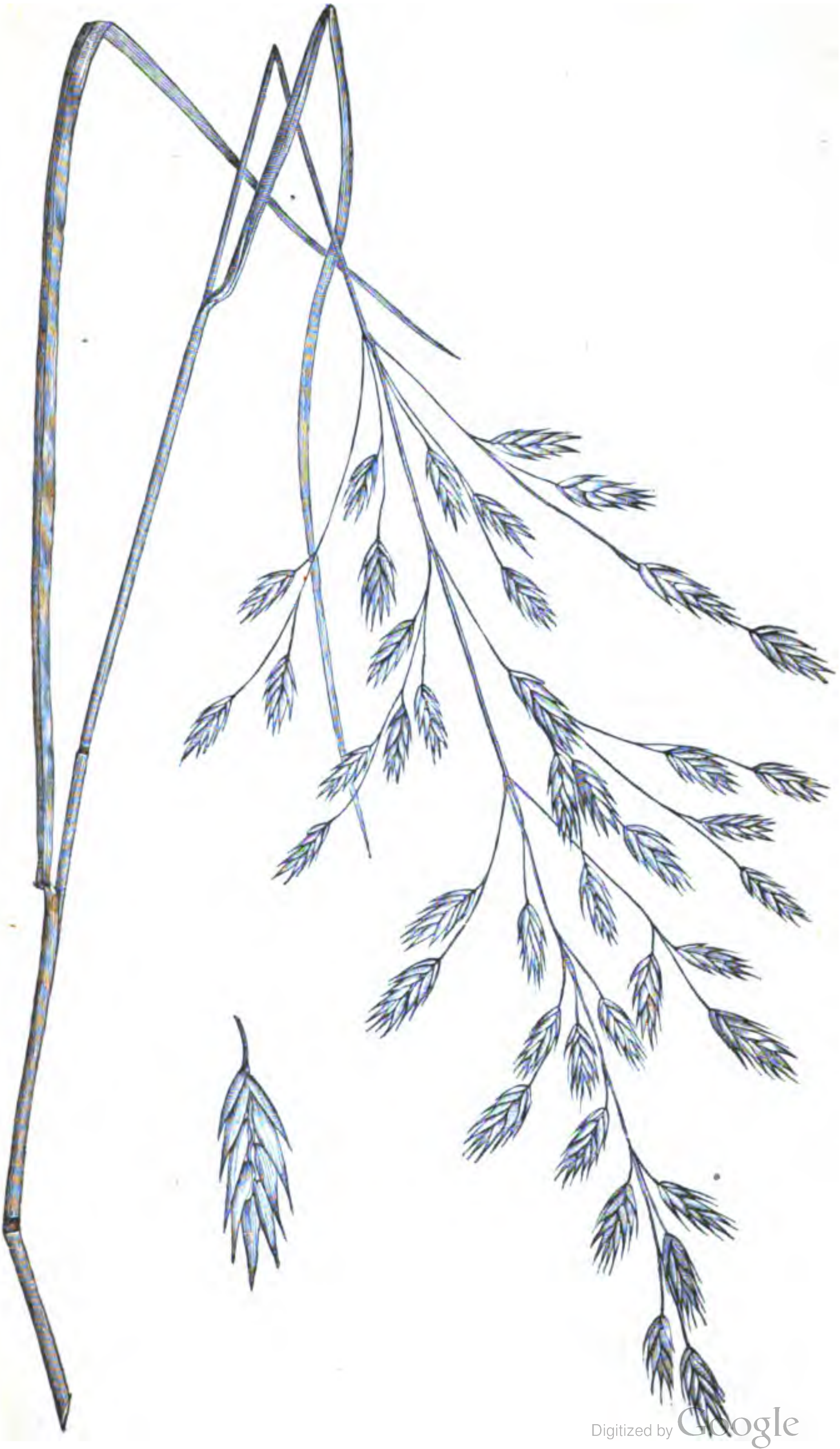
Festuca Elatior. Plate 107.



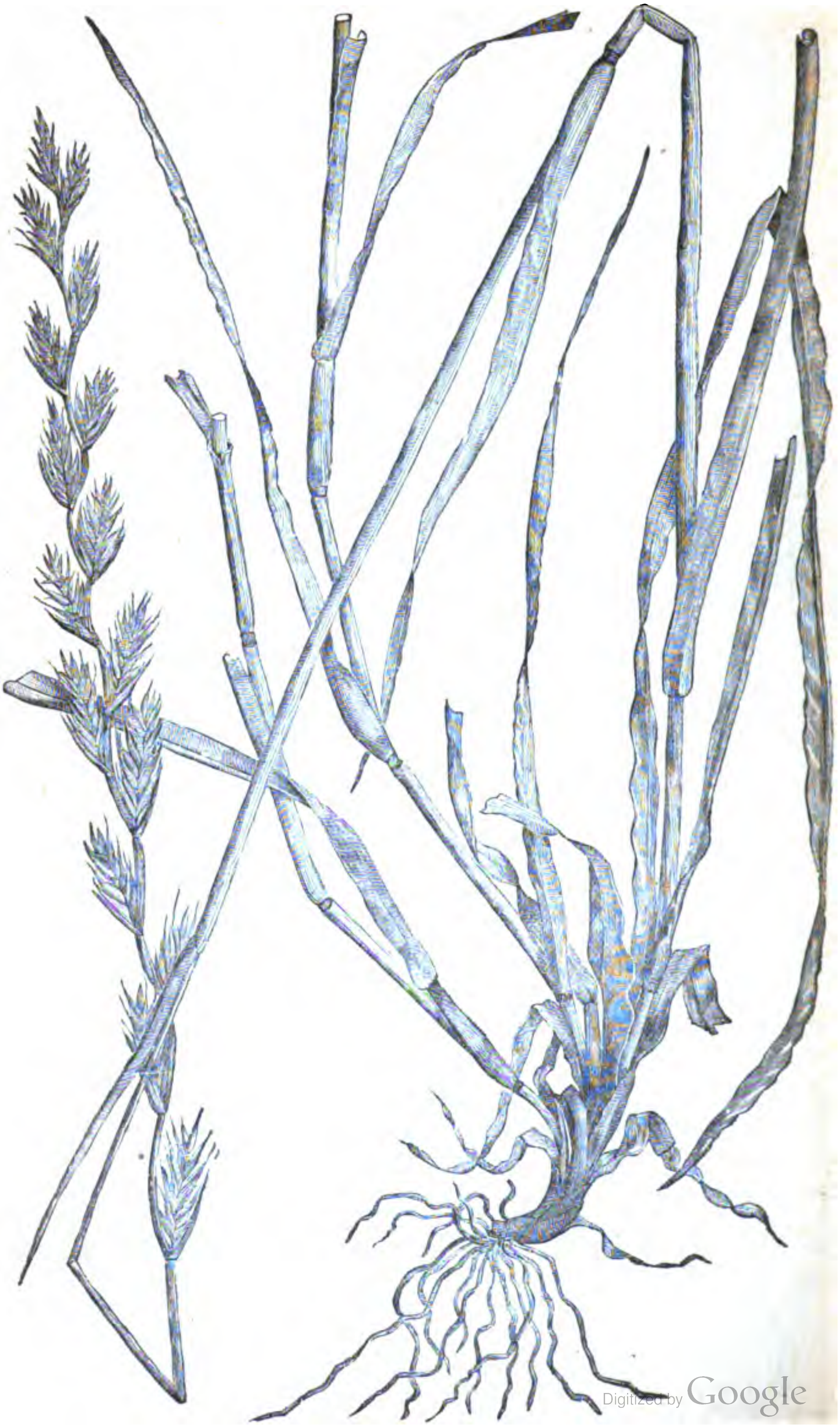
H.H.NICHOLS.

MARX. DEL.

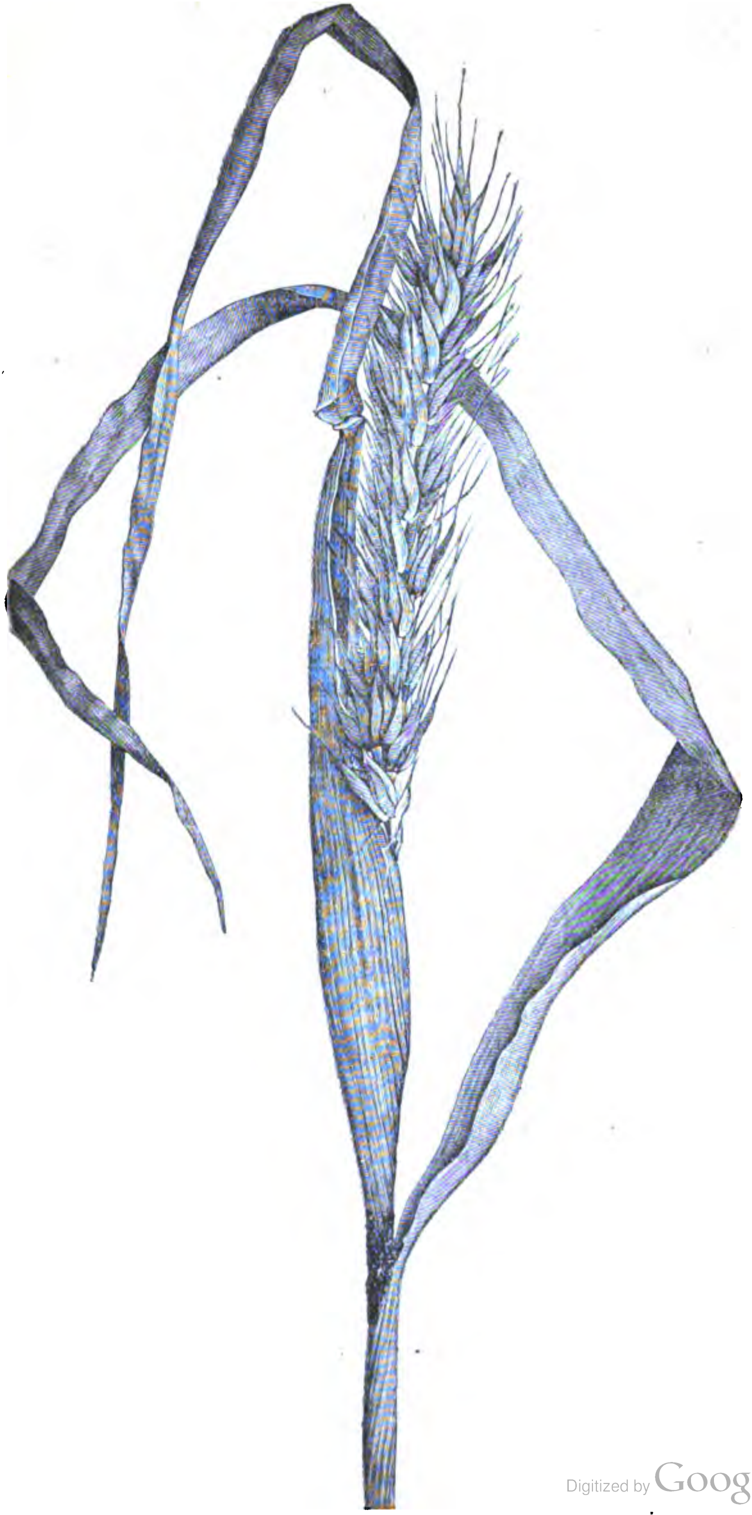
Bromus Secalinus. Plate 111.



Bromus Uniolioides. Plate 112.

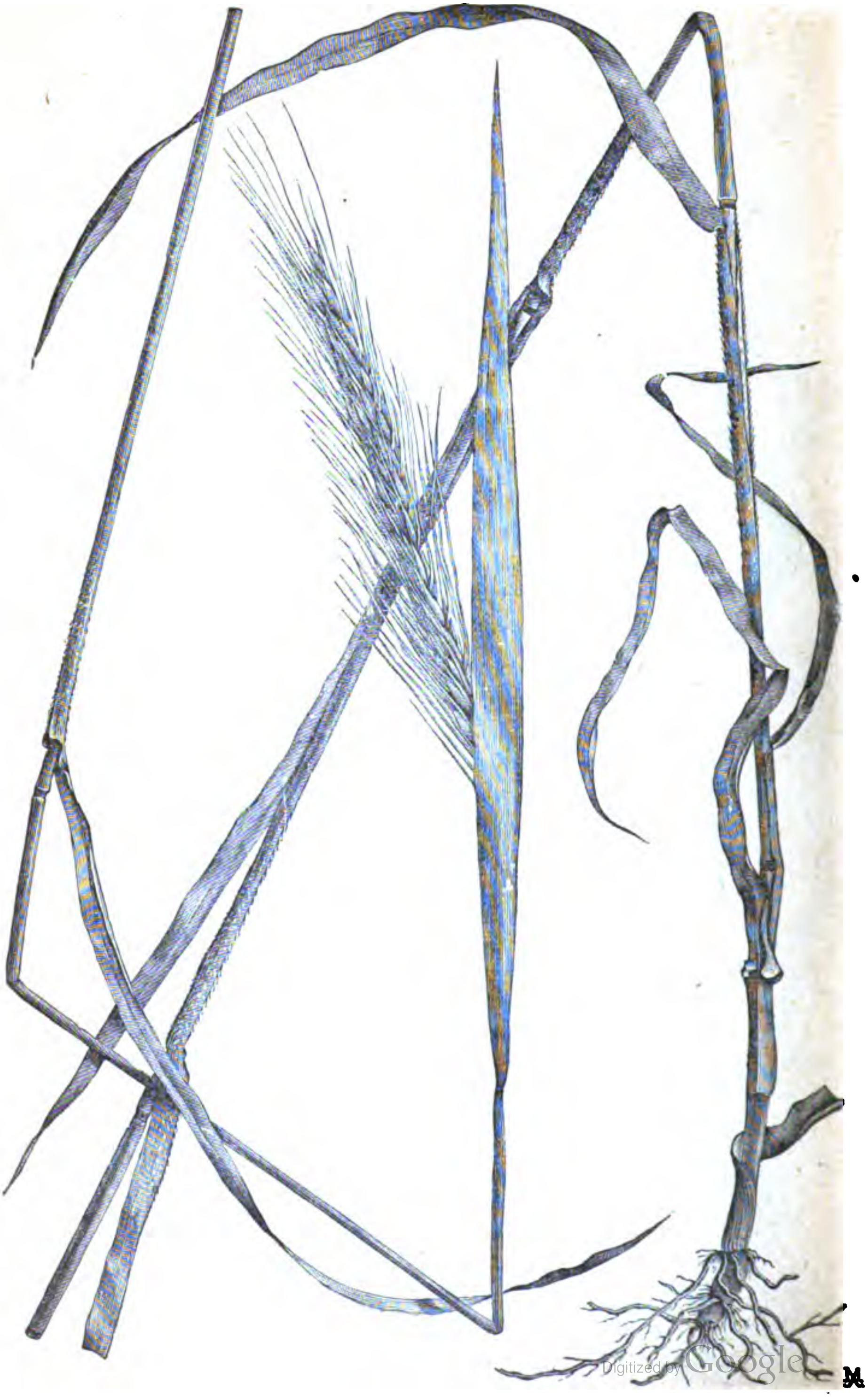


Lolium Perenne. Plate 114.

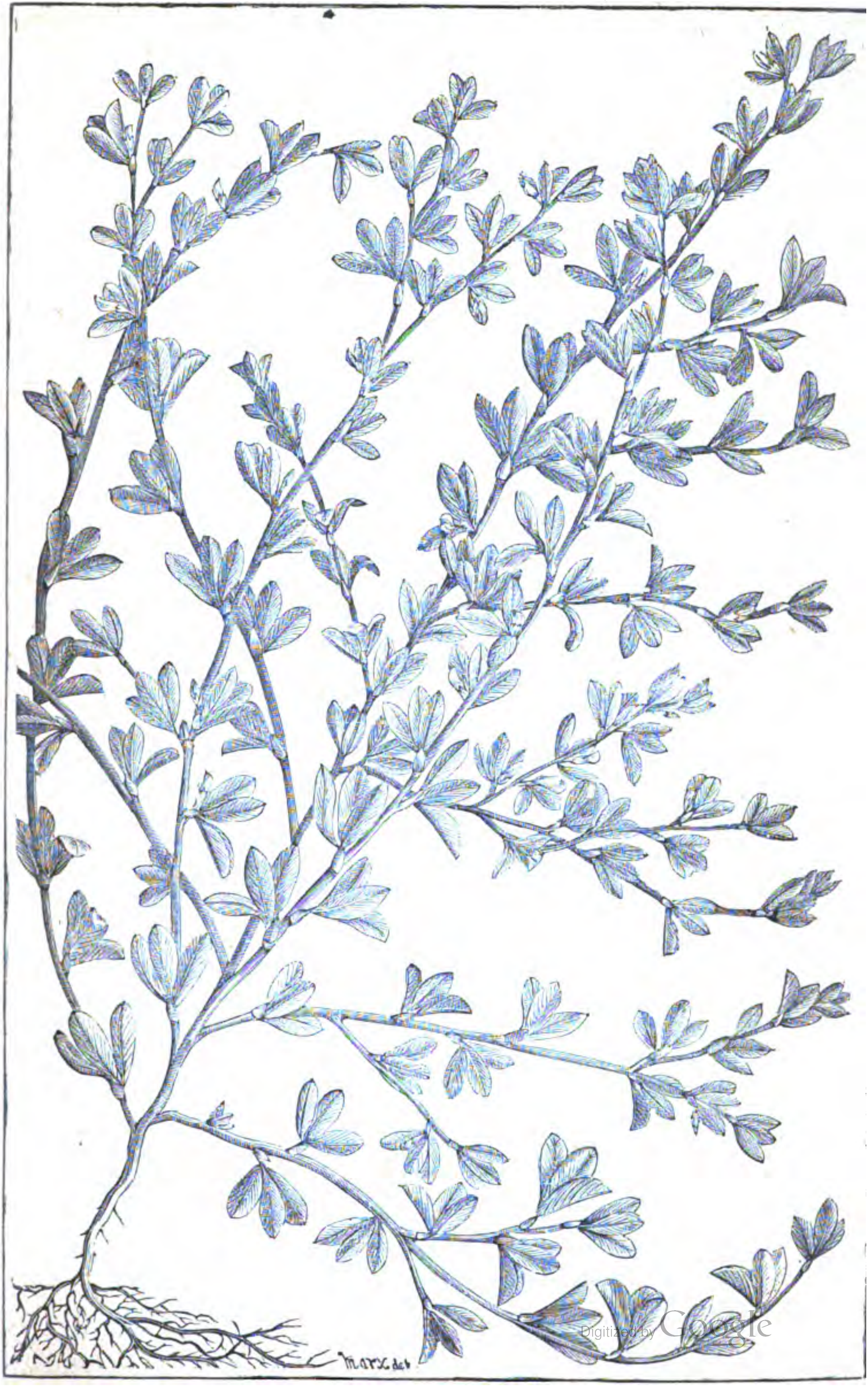


MARX. DEL.

Elymus Virginicus Plate 118.



Elymus Striatus. Plate 119.



Lespedeza Striata Plate 190

"THE FERTILIZERS"

"Best Suited to the Agricultural Products on the Different Soils of South Carolina."

AN ADDRESS DELIVERED BY

PHILIP E. CHAZAL, E. M., STATE CHEMIST,

BEFORE THE JOINT SUMMER MEETING OF THE AGRICULTURAL AND MECHANICAL SOCIETY OF SOUTH CAROLINA AND THE STATE GRANGE, PATRONS OF HUSBANDRY, AT BENNETTSVILLE, S. C., AUGUST 5, 1885.

WORTHY MASTER, MR. PRESIDENT AND GENTLEMEN:

In a science like agricultural chemistry, in which all that is settled and known with some degree of positiveness is but a small and meagre part of the great and all-important whole, and where that which is only surmised or entirely unknown offers such great possibilities, there is an almost unavoidable and excusable feeling of diffidence in approaching for discussion any portion of the field whatsoever. How much greater this feeling, when such approach is in the direction of that *terra incognita*, that unknown land, where the safe and familiar ways must be left behind and the paths before us loom up darkly, even though not forbiddingly.

When I learned on what subject I was invited to address you to-day, I recognized in it one which, in the restricted time at my command and with the available data, it would be impossible to treat in a manner satisfactory either to you or myself. And after consulting with members of your Committees, I had determined to address you on another topic, not so wide in its scope, but of great and especial interest to the agriculturists of our State, and of all the cotton growing States, on cotton seed meal.

But in view of the wide announcement which has been made by circular through the columns of the press that I was to address you on the subject of "Fertilizers best suited to the agricultural products on the different soils of the State," I have deemed it advisable, and due to you, to endeavor to set forth, in part at least, for your consideration, the obstacles in the way of taking up the proposed subject, with the hope that I may assist, however slightly, in bringing about a clearer and more just conception of these difficulties, and in this way lighten the burden under which the agricultural chemist has to struggle.

It is his function, I grant you willingly, to make patient and careful investigation in the direction proposed, and on his efforts depend largely the results to be attained, and to be hoped for until attained. But it is his duty to make every effort and use all diligence to avoid mistakes and to avoid misleading, because the damage caused is not confined solely to the immediate material loss that may be occasioned to others. It weakens his influence and thus lessens his power to assist and advance the progress of scientific agriculture—the object of his existence and the labor of his life. Advance he must, but this advance must be made slowly and carefully.

To treat profitably and accurately the subject proposed, there are necessary three sets of facts, which, stated briefly, are as follows: We must know

1. The constitution of the soils of the State.
2. The action of the various fertilizing principles on the different staple crops of the State.
3. How this action is modified by varying conditions of soil, temperature and moisture, as well as of preparation and cultivation.

What is necessary to a knowledge of the constitution of soils?

Some brief general considerations will be of assistance in determining this point.

Soil has been briefly defined to be "that part of the ground which can be tilled and in which plants grow." This definition, though narrow, will suffice for our present purpose. Soil is formed from rock by the decomposing action of air, temperature, moisture and vegetable growth and decay. This action varies with the nature of the rock, and is gradual or rapid as the rock is resistant or yielding. The soil produced is rich or poor according as the parent rock abounds in the constituents of plant food, phosphoric acid, nitrogen and potash, or is destitute of these elements.

The amount also of soil produced varies with the character of the parent rock and with the agent active in producing decay.

If the soil thus produced were stationary, if soil were always but the rotted subsoil lying beneath it, and the subsoil always the rotted underlying rock, the problem would be greatly simplified. We could go to the rocks predominating in any locality and from their constitution derive an almost certain knowledge of the properties of its soil.

But this is not the case. We find, frequently, instances in which the country rock is either deficient in or entirely destitute of the valuable mineral constituents of plant food, while these constituents may be found in abundance in the overlying soil, whose transfer from the locality of the parent rocks has been brought about and effected by the denuding and transporting powers of rain, river, sea, and even air.

There are numerous systems of soil classification, based on its varying constitution and properties. One of the simplest and best, viewed agriculturally, is that given by Masure. He proceeds on the assumption that the four agricultural elements of an arable soil are:

1. Sand, including all grains which are not held in suspension in water, but which settle rapidly and fall to the bottom, and consisting generally of quartz or pure silica, but sometimes also of fragments of primitive rocks composed of the various silicates of alumina, iron, lime, magnesia, potash and soda.

2. Clay, embracing all earthy matters held in suspension in water and not effervescing on the addition of acids, and consisting principally of an hydrated silicate of alumina with varying proportions of iron, magnesia, lime and the alkalies.

3. Calcareous matter, earthy matters effervescing in acids, and dissolved by them, consisting chiefly of carbonate of lime with various other salts of lime and magnesia.

4. Humus, the residues of the decomposition and destruction of organic matter.

He bases his classification, which is as follows, on the relative predominance of these elements:

MASURE'S CLASSIFICATION.

1. Loam, (the typical arable soil); 2. Clay soils; 3. Sandy clay soils; 4. Lime clay soils; 5. Humus clay soils; 6. Sandy soils; 7. Clay sand soils; 8. Lime sand soils; 9. Humus sand soils; 10. Lime soils; 11. Humus soils.

It is not necessary for our present purposes to describe these various subdivisions, nor to give their special characteristics, with their respective advantages and deficiences. The object of citing the table has been merely to recall forcibly the variations that may be found in soils. And when it is remembered in addition that there are no such abrupt distinctions in nature, and that these types pass slowly and insensibly into each other, it at once becomes manifest that an extensive investigation is necessary to determine the predominant soils of the State and their special characteristics.

This investigation has never been made. All the material we possess is contained in a few isolated analyses of soils, and these, with some few exceptions, of but little value,—in the eyes of many of no value at all.

There is no subject connected with scientific agriculture which has undergone a more radical and revolutionary change of opinion than soil analysis. The old method was based on the idea that, knowing what elements of plant food were removed from the soil by the various crops, the course to be pursued was to make a complete chemical analysis of the soil, particularly with regard to its contents of phosphoric acid, potash, lime and nitrogen, and then to make up any deficiency that might be discovered by the addition of various artificial or natural manures; the test of abundance or deficiency of any particular element of food being based on the amount required for the growth of the particular crop to be planted.

A vast amount of work was done, series after series of analyses were made and published, and with scarcely any other appreciable result than to prove the uselessness of the work that had been so carefully and laboriously performed.

There is a limit of accuracy in all chemical analytical work. An error or variation of one-tenth of 1 per cent. between analyses is as small as can be expected in the present condition of general chemical analysis, and it is improbable that any improvement will ever be made in this respect.

Now, the soil of an acre of land taken to a depth of six inches will weigh, approximately, two million (2,000,000) pounds. Practical experience has shown us that if we will apply to an acre of soil two hundred (200) pounds of any of the standard fertilizers, we will receive in return an appreciable increase in the amount of the crop produced, and a much greater increase, other things being equal, if four hundred (400) pounds are used.

The average of all the complete fertilizers sold in this State during the three years 1881–1884 was:

Available phosphoric acid	8.67 per cent.
Ammonia	2.71 per cent.
Potash	1.60 per cent.

That is, four hundred (400) pounds of such a fertilizer would contain in round numbers 34 pounds of available phosphoric acid, 11 pounds of ammonia and 6.5 pounds of potash. Comparing these weights with that of the soil, we find that the phosphoric acid amounts to less than $\frac{1}{500}$ of 1 per cent. of the weight of the soil, the ammonia to about $\frac{1}{1500}$ of 1 per cent., and the potash to $\frac{1}{3000}$ of 1 per cent. of that weight. Compare these amounts with the limit of analytical accuracy, $\frac{1}{10}$ of 1 per cent., and there at once becomes apparent the absurdity of attempting to distinguish between two soils by chemical analysis alone.

Further, even though analysis should show the presence in the soil of the elements of plant food, it cannot always distinguish in what combinations it is present. And it is possible that of two soils, the one with an apparent abundance of plant food, the other with but a small amount of these essential ingredients, the poorer will give in actual practice much greater returns, because it contains its relatively small amount of valuable constituents in forms available for the immediate use of the plant, while the other soil contains its larger amount of these constituents under the form of compounds insoluble or very slowly soluble in in the dissolving agents of vegetable growth. A vast amount of experimentation has been carried on in the attempt to discover a dissolving agent which shall imitate and take the place of these natural solvents of the plant and soil.

Mineral and organic acids of various strengths and carbonic acid water have been tried, but no results have been obtained that have been justified in an even tolerably general practice, save in one instance, and these conventional methods have fallen into comparative disrepute. The exception alluded to, Grandeau's method of determining "*matiere noire*," has met with considerable justification by the results of actual practice. But this has not been universally the case, and the general adoption of this method has been thereby prevented or retarded. Briefly described, it consists in treating the soil with an aqueous solution of ammonia and then analyzing the extract thus obtained, it being Grandeau's belief that the "*matiere noire*," or "black matter," obtained by this leaching process with ammonia, represents the available plant food of the soil.

It would scarcely be going too far to state that whatever information of value was obtained by means of soil analysis was gained by the use of this method, which, however, may be said to belong rather to the new than to the old system.

Such being the case, the inevitable result was that soil analysis, as practiced, fell into very great disfavor. Latterly, however, it has received a fresh impetus, due especially to the intelligent labors of Professor Hilgard, of the University of California, Special Agent of the Tenth United States Census, and formerly of the University of Mississippi.

The new system of soil analysis differs from the old, not so much in its methods as in its interpretation of the results obtained by these methods and its taking into more especial consideration the physical properties of soils and the forest growths natural to the soils.

Professor Hilgard, in his very interesting and instructive article on the subject in volume 5 of the Tenth United States Census, after citing the fact that in this country it is comparatively easy to find soils that have never been cleared for cultivation, and with the original forest growth still untouched, says:

"The virgin soil and its vegetation are the outcome of long ages of coadaptation by the processes of natural selection, and they present to us an array of ready-made culture experiments whose cogency can rarely be approached by those of our experiment stations within less than a lifetime. The observant farmer or settler attaches to each tree or herb a more or less definite significance, based upon experience, as regards the character and productiveness of the parent soil."

Professor Hilgard's investigations have been based on these facts. He takes a sample of virgin soil of whose richness or poverty he judges by the character of the vegetation produced by it, makes a careful investigation of its physical properties, its mechanical condition, its power of absorbing moisture and its chemical constitution, and finally he makes use of Grandeau's method for the determination of the available plant food.

The comparison of a series of such analyses with the accompanying knowledge of the degree of strength of the soil, based as above mentioned on the character of the growth produced by each, offers a very valuable source of information in regard to the agricultural value of soils, which will doubtless facilitate the study and investigation of their proper fertilization and treatment.

The superiority of this system to the old is too manifest to need explanation, if in no other respect, at least in the respective methods of interpreting the results obtained. The old method furnished to the farmer a series of figures adding up one hundred and left him to do the best he could with it. It is the aim of the new method to make a logical deduction from the facts of experience and to offer these deductions instead of bare and to most minds unintelligible percentages.

It is my intention to institute as soon as possible such a series of investigations on the soils of South Carolina as has already been done in Mississippi and Alabama. The labor will be great and the progress of the work will necessarily be slow, but the time and expense involved will, I trust, be fully repaid by the information obtained.

As regards the second class of facts necessary, facts as to the action of the various fertilizing principles on our staple crops, we are in a somewhat better condition, as we can, as regards some of our crops at least, draw on the experience of our neighbors and learn from their experiments, from their successes and their failures.

Unfortunately, we are here met by a new difficulty, the disagreement that has arisen in the results obtained by different experimenters. Our chief crops are wheat and oats, Indian corn and cotton.

As regards the cereals proper, there seems no room for doubt. The world-famous experiments of Messrs. Lawes and Gilbert, made in England and carried on during a period of over forty years, have demonstrated conclusively the fact that while the cereals are the least nitrogenous of all crops, they possess in so slight a degree the power of assimilating nitrogen from the natural sources of supply that they require and respond very favorably to the addition of nitrogenous manures.

The results thus obtained have been substantiated by experiments everywhere.

But when we come to Indian corn, one of our most important crops, also a cereal, agreement at once ceases. I feel little hesitation in saying that most practical farmers will agree that cotton seed is an excellent fertilizer for the corn crop, and that its use is profitable. This is strictly in accordance with the general principle that the cereals require nitrogen.

But this view meets with by no means universal acceptance. Unfortunately, the shortness of the English season has prevented the carrying on of any experiments with this particular crop, and we are thus deprived of the valuable assistance that we might otherwise have relied on obtaining from that quarter.

We are thus forced to fall back on such experiments as have been carried on in our own country, none of which have been extended over a long period of years, and which are consequently lacking in one very important element of accuracy and reliability.

Professor Atwater, of Connecticut, has reported a series of experiments on the effect of various fertilizers on corn, carried on by practical farmers under his direction and extending over a period of four years. These experiments may be found in the Annual Reports of the Connecticut Board of Agriculture for the years 1878 to 1881,

Professor Atwater says, (1878, p. 395:)

"The most efficient of the fertilizing materials was phosphoric acid, next potash, and last of all nitrogen." A little farther on he says: "As regards the nitrogen question, these experiments imply that nitrogenous fertilizers help the crop but little, and that somehow or other corn can, in most cases, get a fair supply of nitrogen for itself, provided the mineral food is supplied in the fertilizer. With mineral fertilizers alone the crop gathered on the average 57 pounds of nitrogen per acre."

In the Report for 1879 (p. 385) he says again: "The experiments of the two seasons bear unanimous testimony to two things: The corn was helped but little by nitrogenous fertilizers, and it gathered a good deal from natural sources." In his Report for 1880 (p. 347) he repeats the above conclusions, and farther on adds that the "Nitrogen increased the crop enough to pay its cost in thirty trials out of one hundred and fifty." In his final report in 1881 (p. 362) he says: "As to the feeding capacities of different plants, the results of the last year's special nitrogen experiments, which have been much more numerous than those of previous years, simply confirm and amplify what has been said before. Corn, with rare exceptions, gets on fairly well with little or no nitrogen in manures, but generally responds to phosphoric acid, and often to potash."

These experiments would seem to show that corn resembles in its feeding capacity the leguminous rather than the cereal crops, and that it possesses the power of rendering available the natural supply of nitrogen. The soils on which these experiments were made had been planted in grass and possessed a supply of roots, &c.

Mr. Lawes, in a letter quoted by Professor Atwater, after showing that the chemical composition of maize, or Indian corn, proves that it is not a leguminous plant, suggests that an explanation of these results may be found in the fact that corn has a longer and more favorable time in which to gather its supply of nitrogen. He says: "The most active growth of the maize takes place after the wheat has ceased to collect its food. During the Summer and Autumn nitric acid is largely formed in the soil, and is taken up by both wheat and maize; but the early ripening of the wheat stops further collection by that plant, while maize continues to collect till late in the Autumn," (1878, p. 384); or, as summarized by Professor Atwater: "In brief, Mr. Lawes would expect that corn, during its longer period of growth, would, with the aid of mineral fertilizers, produce a larger yield, and, of course, gather more nitrogen than a wheat crop; but he is at the same time inclined to class it with the cereals."

It must be borne in mind that Mr. Lawes does not here endorse the principle that corn does not require nitrogenous fertilizers; he is merely seeking to explain facts recorded by others which have come under his notice.

Professor Hilgard, in his Census Report (vol. V, p. 51,) says: "Corn will bear a heavy application of ammoniacal manures."

In a very interesting essay read before the Georgia State Agricultural Society, at their annual meeting for 1885, Prof. H. C. White, the State Chemist of Georgia, says (Transactions, p. 259):

"It is a matter of common experience that cotton seed is a good fertilizer for corn. Experiments have indicated that nitrogenous manures are not necessary for corn. If this is true, then the value of the cotton seed is probably due to the physical action of the organic matter, in which case any other organic matter, even if non-nitrogenous, should act as well."

To determine the effect of such non-nitrogenous organic matter mixed with mineral manure, when compared with nitrogenous organic matter under the same conditions, Prof. White made two experiments. In one he used two hundred pounds of acid phosphate containing potash mixed with forty bushels of pine sawdust, the mixing being done just before planting. In the other he used a mixture composed of the same amount of mineral manure with twenty bushels each of cotton seed and rotted stable manure, the mixture having been made on December 20 and allowed to stand under shelter until March 22, when the plot was planted.

The yield in both cases was about the same, both plots giving practically the same amounts of fodder, corn and shucks.

A third experiment made at the same time, using a compost of the same proportions and materials as the other, but mixed immediately before applying, gave slightly larger amounts of fodder and shucks, but about 32 per cent. more corn in the ear.

Prof. White's conclusions are that:

1. "Non-nitrogenous organic matter produces approximately as good results under corn as nitrogenous matter;" and

2. "Freshly made compost produces rather better results than that which has stood several months."

The first conclusion seems to bear out the results of Professor Atwater's experiments in Connecticut.

It may be remarked that the fact that the third experiment with freshly-made compost gave a materially larger production of corn than the compost made in December, 1,157 pounds against 874 pounds, is worthy of note. And if this result was not merely accidental, it would be interesting to know to what cause this difference is due—whether to a loss of valuable constituents in the older compost, or to the greater chemical energy of the freshly-mixed material. In none of these experiments has there been made any claim to certainty of the conclusions drawn. The short periods over which they have been extended, and the scientific skill and knowledge of the gentlemen conducting them, have prevented any such claim.

I have cited them with no desire to reflect on or criticise, but merely to show that when we come to examine into the available data we are at once met by serious discrepancies in results, and in the opinions and conclusions based on these results.

When we come to consider the question of the fertilization of the cotton crop, we find on examination that the field is even more limited. The cultivation of this crop is confined, as you well know, to the Southern States.

We have, therefore, no exterior sources of information to which we may have recourse to supply our unavoidable deficiencies. I say unavoidable deficiencies, because the cotton States have been too much occupied during the past twenty years in the endeavor to recover from the results of a disastrous conflict, and to accommodate themselves to changes involving an entire revolution in their agricultural system, to be able to afford the expense and devote the attention needed for experimentation of the character demanded.

But few experiment stations have been established amongst us, and their establishment is of too recent a date to justify us in expecting much from them as yet. Of course, where such an enormous interest has been involved, more or less experimentation has been carried on by institutions and individuals, and could the results thus obtained be collated and compared, doubtless much interesting and valuable information would be obtained. But they are scattered far and wide, some in the pages of short-lived agricultural papers—papers worthy of a better fate—and many have never been published.

And in this latter class would probably be found those really valuable and those most fertile in results. For they are generally in the hands and are the results of the labors of men in every way fitted for the work, who, realizing the far-reaching character of some of their results, have hesitated to give them to the world without confirmation of a very positive character, which time and experiment alone can supply.

The relative fertilizing values of cotton seed and cotton seed meal, not only in regard to the cotton crop, but in regard to various other crops, the fertilizers best adapted to improve the yield of lint and avoid any undue growth of the plant proper, the proper time of application, and the method, composts or complete fertilizers, are all questions of great importance, deserving our most earnest study.

I might cite experiments, the results of which show the disagreement amongst observers and the necessity of further investigation, but it would involve a mere repetition of a line of argument used in a former portion of this discussion.

When we remember the additional fact that the action of all fertilizers is subject to more or less modification by variations of climate, temperature, moisture, the condition of the soil as to drainage, etc., the additional complexity of the question becomes at once manifest.

Summing up briefly, I have endeavored to point out the difficulties in the way of answering the question suggested, due to the lack and deficiencies of soil analyses, the disagreement as to the proper fertilizers to be used on certain crops and the modifications which are necessarily occasioned by local conditions. These are all questions of the greatest interest and importance and deserving of the fullest investigation at our hands. It can be made in but one way, by means of experiment stations.

Private individuals have not the time, even if they have the will and ability, to conduct experiments in a way to render them authoritative, and still less are they able to repeat these experiments for a number of years. Various considerations, notably the attendant expense and danger of deterioration of and injury to their property, prevent it.

The South has taken new and rapid strides in every other direction of progress, and she must certainly not fail to advance in every way what must, after all, be her main reliance and source of revenue: her agricultural interests; and I feel no hesitation in saying that this can best be accomplished by the establishment of stations devoted to the study of the peculiar conditions surrounding her crops.

I am glad to be able to state that it is the hope and intention of the Department of Agriculture of our State to begin at no very distant time in the future this very important work, a work to which we should all lend a helping hand wherever needed, and which must prove of boundless value to the agricultural interests of our State.

When the book farmer goes into the field and proves by the test of actual practice the truth or falsity of his theories, there will be no grounds left for discrediting him and his work, and all will labor together in harmony and for our mutual welfare.

There is every reason for hope. The future is full of promise. We are at the beginning merely of the development of scientific agriculture in our State. Wider means and new methods of investigation, and above all things the lessons derived from the mistakes of the past, the stern teachings of experience, justify us in hoping that the progress of this development will go on without retardation and that our agricultural interests will be correspondingly benefited.

PUBLICATIONS.

The following publications were issued and distributed by the Department during the year 1885:

Monthly Reports, April to September	27,000	copies.
Special Exposition Report	5,000	"
Report on analyses of fertilizers	3,000	"
Circulars for crop reports	3,500	"
Cotton Worm Bulletin	600	"
		"
Total	39,100	"

CONCLUSION.

The thanks of the Commissioner are due and hereby tendered to your Excellency, and each member of the Board, for the uniform courtesies extended him, and the valuable assistance rendered in the discharge of his duties.

The Commissioner has endeavored to execute all orders of the Board and to faithfully follow all the rules prescribed for his guidance.

The Department of Agriculture is under many obligations to the County and Township correspondents, who have, without compensation, cheerfully aided the Department in its important work.

I have the honor to be your Excellency's obedient servant,

A. P. BUTLER,
Commissioner of Agriculture.

Number of Acres, and Yield in Bales and Bushels, of Cotton and Corn in South Carolina, 1885.

COUNTY.	COTTON.		CORN.	
	Acres.	Yield. Bales.	Acres.	Yield. Bushels.
1. Abbeville..........	105,650	36,978	59,598	774,774
2. Aiken................	47,013	17,394	53,962	539,620
3. Anderson............	79,873	30,351	59,888	758,208
4. Barnwell............	107,159	36,434	87,381	873,810
5. Beaufort............	14,840	4,155	16,504	198,048
6. Berkeley............	25,030	5,006	28,600	286,000
7. Charleston..........	2,790	418	4,833	82,161
8. Chester..............	66,451	19,935	42,814	556,572
9. Chesterfield.........	24,174	9,427	30,464	365,568
10. Clarendon...........	33,893	14,912	83,035	363,385
11. Colleton.............	15,061	7,380	48,013	528,143
12. Darlington	76,713	28,383	54,840	493,560
13. Edgefield...........	114,942	42,528	72,307	939,991
14. Fairfield............	90,277	27,985	43,152	345,216
15. Georgetown.........	459	185	4,529	67,925
16. Greenville	57,594	22,461	56,338	1,014,084
17. Hampton	26,912	9,488	33,120	331,200
18. Horry................	2,318	1,019	15,837	232,555
19. Kershaw.............	36,792	12,141	25,156	201,248
20. Lancaster...........	38,654	12,755	54,961	659,532
21. Laurens	83,352	30,673	30,980	371,760
22. Lexington..........	30,208	13,895	38,777	494,101
23. Marion..............	58,966	20,048	65,437	654,370
24. Marlboro	52,388	18,859	32,371	248,968
25. Newberry...........	71,351	26,399	37,331	373,310
26. Oconee..............	17,265	7,596	24,754	346,556
27. Orangeburg.........	81,170	28,409	70,691	777,591
28. Pickens..............	23,214	12,071	29,869	448,035
29. Richland	36,354	12,360	23,732	237,320
30. Spartanburg........	73,658	26,516	59,570	774,410
31. Sumter..............	71,880	25,876	49,068	588,816
32. Union	65,950	22,423	44,291	521,492
33. Williamsburg......	20,305	7,106	31,631	284,679
34. York.................	69,451	25,696	56,464	846,960
Total.	1,722,107	617,162	1,420,298	16,579,968

Number of Acres, and Yield in Bushels, of Wheat, Oats and Peas in South Carolina, 1885.

COUNTY.	WHEAT.		OATS.		PEAS.	
	Acres.	Yield. Bushels.	Acres.	Yield. Bushels.	Acres.	Yield. Bush.
1. Abbeville......	14,884	104,188	26,474	185,297	1,400	7,000
2. Aiken	6,074	36,444	7,502	112,530	7,900	31,600
3. Anderson......	19,748	118,488	20,653	123,918	1,500	9,000
4. Barnwell	3,049	36,588	18,938	284,070	7,900	71,100
5. Beaufort.......	....	....	257	5,911	900	10,800
6. Berkeley	....	....	3,037	48,592	3,000	21,000
7. Charleston	....	....	459	7,264	1,000	6,000
8. Chester.........	9,396	37,584	16,415	82,075	1,100	8,800
9. Chesterfield ...	3,417	23,919	5,755	63,305	1,600	8,000
10. Clarendon......	124	1,364	3,282	45,948	4,500	31,500
11. Colleton........	275	3,029	8,633	138,128	4,600	27,600
12. Darlington....	2,503	17,521	11,275	112,750	17,000	102,000
13. Edgefield......	13,646	109,168	39,683	555,562	6,000	36,000
14. Fairfield.......	4,816	28,896	11,093	99,837	4,200	42,000
15. Georgetown ...	....	....	251	3,012	1,000	8,000
16. Greenville......	14,542	72,710	11,921	119,200	1,000	7,000
17. Hampton	27	270	7,256	87,584	1,000	6,000
18. Horry..........	....	....	287	5,453	1,600	8,000
19. Kershaw.......	1,371	6,855	3,675	33,075	2,600	15,600
20. Lancaster......	4,108	20,540	7,615	38,075	2,000	20,000
21. Laurens........	12,576	75,456	20,273	121,638	2,000	14,000
22. Lexington	13,487	94,409	10,721	117,931	12,500	62,500
23. Marion.........	1,076	11,836	11,193	156,702	12,500	75,000
24. Marlboro	2,350	18,800	4,693	42,237	6,000	36,000
25. Newberry......	9,665	57,990	19,138	133,966	2,000	12,000
26. Oconee	5,160	25,800	6,320	69,520	1,500	16,500
27. Orangeburg...	3,156	28,404	12,481	87,361	10,000	60,000
28. Pickens........	5,531	49,771	3,243	25,944	1,000	12,000
29. Richland	462	3,756	2,376	28,512	1,200	8,400
30. Spartanburg...	16,412	82,060	11,627	69,762	1,000	6,000
31. Sumter	395	2,765	5,678	73,814	10,000	60,000
32. Union...........	9,551	47,755	7,761	62,088	2,000	18,000
33. Williamsburg.	71	639	1,942	43,014	8,000	40,000
34. York...........	18,104	90,520	17,829	124,740	1,000	8,000
Total.............	195,976	1,207,525	339,736	3,308,815	142,500	905,400

Number of Acres, and Yield in Pounds and Bushels, of Irish and Sweet Potatoes and Rice in South Carolina, 1885.

COUNTY.	IRISH POTATOES.		SWEET POTATOES.		RICE.	
	Acres.	Yield. Bushels.	Acres.	Yield. Bushels.	Acres.	Yield. Pounds.
1. Abbeville....	150	15,900	500	57,500	16	12,800
2. Aiken..........	100	7,500	1,100	121,000	450	360,000
3. Anderson	180	16,200	560	60,480	50	70,000
4. Barnwell......	100	12,500	1,800	194,400	1,400	1,176,000
5. Beaufort	120	15,000	4,800	240,000	12,900	15,480,000
6. Berkeley... }	1,000	175,000	4,000	368,000	11,750	9,400,000
7. Charleston }					125	100,000
8. Chester.........	100	8,100	150	15,900		
9. Chesterfield..	100	12,500	1,000	125,000	25	20,000
10. Clarendon.....	50	6,250	1,300	84,500	1,650	792,000
11. Colleton	50	4,350	1,800	135,000	16,000	19,200,000
12. Darlington ...	50	5,750	1,900	155,800	1,000	720,000
13. Edgefield	150	7,500	1,100	102,300		
14. Fairfield......	100	9,200	950	102,600	10	8,000
15. Georgetown .	50	6,250	600	81,000	12,100	19,360,000
16. Greenville.....	120	12,000	500	30,000	25	25,000
17. Hampton	50	5,000	860	55,900	3,100	2,480,000
18. Horry..........	50	2,000	2,300	335,000	1,650	1,320,000
19. Kershaw	200	15,000	825	41,250	550	440,000
20. Lancaster.....	50	2,500	300	42,000		
21. Laurens.......	150	12,150	400	34,800		
22. Lexington	100	10,000	1,700	112,500	240	192,000
23. Marion	100	12,500	3,000	360,000	3,000	3,800,000
24. Marlboro......	50	5,000	1,200	114,000	150	156,000
25. Newberry......	100	8,000	600	36,000		
26. Oconee	100	10,000	175	16,625	15	12,750
27. Orangeburg ..	120	11,280	1,200	147,600	6,000	3,600,000
28. Pickens	75	8,400	280	26,600	30	24,000
29. Richland......	50	5,000	1,100	93,500	240	172,800
30. Spartanburg .	125	10,000	350	28,000	10	8,500
31. Sumter	100	12,000	2,000	150,000	1,900	912,000
32. Union..........	100	5,200	410	34,850		
33. Williamsburg	50	4,600	1,900	188,100	3,700	2,590,000
34. York	425	53,125	540	48,600		
Total.........	4,415	505,755	41,200	3,738,805	78,086	82,431,850

Number of Acres, and Yield in Gallons and Pounds, of Sugar Cane Sorghum and Tobacco in South Carolina, 1885.

COUNTY.	SUGAR CANE.		SORGHUM.		TOBACCO.	
	Acres.	Yield. Gallons.	Acres.	Yield. Gallons.	Acres.	Yield. Pounds.
1. Abbeville	150	17,250	1,500	75,000	25	6,250
2. Aiken	50	5,000	200	17,000	10	4,000
3. Anderson	15	1,500	325	16,900	50	37,500
4. Barnwell	700	112,000	300	30,900	10	2,500
5. Beaufort	75	2,250	20	1,520		
6. Berkeley	15	1,725	20	1,520		
7. Charleston	10	1,150	10	760	10	2,500
8. Chester	....	....	260	23,920	40	20,000
9. Chesterfield	50	5,750	25	1,900		
10. Clarendon	50	2,500	25	1,000		
11. Colleton	300	66,000	250	25,000	10	2,500
12. Darlington	50	5,750	50	3,800	15	12,000
13. Edgefield	60	3,000	1,500	112,500	15	3,250
14. Fairfield	25	2,875	150	13,500	15	3,250
15. Georgetown	....	....	20	1,520		
16. Greenville	40	2,400	550	44,000	50	15,000
17. Hampton	550	69,375	25	1,250		
18. Horry	30	3,350	20	1,520	25	6,250
19. Kershaw	20	2,300	200	15,200	15	3,250
20. Lancaster	20	2,300	250	18,000	10	2,500
21. Laurens	20	1,400	270	20,520	25	6,250
22. Lexington	50	10,000	400	20,000	15	3,250
23. Marion	20	2,300	25	1,900	25	6,250
24. Marlboro	10	1,150	25	1,900	10	2,500
25. Newberry	20	2,300	350	21,000	10	1,000
26. Oconee	10	1,150	800	52,000	30	6,000
27. Orangeburg	450	81,000	900	64,800	10	2,500
28. Pickens	20	2,300	200	13,000	30	7,500
29. Richland	10	1,150	50	2,500	10	2,500
30. Spartanburg	20	2,300	200	8,000	60	36,000
31. Sumter	25	2,875	20	1,520	10	2,500
32. Union	30	2,250	300	18,000	25	25,000
33. Williamsburg	40	8,000	30	3,600	10	2,500
34. York	20	2,300	350	35,000	15	3,250
Total	2,955	426,950	9,620	670,450	585	227,750

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884–85.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Acid Phosphate	Ashley Phos. Co	Charleston, S. C.
Acid Phos	Atlantic Phos. Co	Charleston, S. C.
Acid Phos	Ashepoo Phos. Co	Charleston, S. C.
Acid Phos	Lorentz & Rittler	
Acid Phos	J. I. Middleton & Co	Baltimore, Md.
Acid Phos. (Amazon)	Edisto Phos. Co. (for J. Pink Reed)	Charleston, S. C.
Acid Phos	Gibson & Co	Columbia, S. C.
Acid Phos	Read & Co	New York.
Acid Phos	Baldwin & Co	Savannah, Ga.
Acid Phos. (Chatham)	Perry M. DeLeon	Savannah, Ga.
Acid Phos. (Cotton)	The Zell Guano Co	Baltimore, Md.
Acid Phos. (Combahee)	Ashepoo Phos. Co	Charleston, S. C.
Acid Phos	Russell Coe	Linden, N. J.
Acid Phos	Etiwan Phos. Co	Charleston, S. C.
Acid Phos. (Crayton & Sons)	Edisto Phos. Co	Charleston, S. C.
Acid Phos	Georgia Chemical Works	Augusta, Ga.
Acid Phos	Georgia Chemical Works	Augusta, Ga.
Acid Phos. (Ga. State Standard)	Hammond, Hull & Co	Savannah, Ga.
Acid Phos. (Ga. State Grange)	Baldwin & Co	Savannah, Ga.
Acid Phos. (High Grade)	John Merryman & Co	Baltimore, Md.
Acid Phos. (Navassa)	Navassa Guano Co	Wilmington, N. C.
Acid Phos. (Oglethorpe)	Hammond, Hull & Co	Savannah, Ga.
Acid Phos	Edisto Phos. Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Acid Phos. (Eutaw)	Ashepoo Phos. Co	Charleston, S. C.
Acid Sol. Phos. (Patapsco)	Georgia Chemical Works	Augusta, Ga.
Acid Phos. (Port Royal)	Hammond, Hull & Co.	Savannah, Ga.
Acid Phos. (Pelican)	Dowie & Moise	Charleston, S. C.
Acid Phos. (Palmetto)	Ashepoo Phos. Co	Charleston, S. C.
Acid Phos. (Pelzer)	Atlantic Phos. Co.	Charleston, S. C.
Acid Phos. (Pomona)	Perry M. DeLeon	Savannah, Ga.
Acid Phos. (H. Preston & Sons)	Preston Fertilizer Co	Greenpoint, L. I.
Acid Phos. (Rasin)	The Rasin Fertilizer Co	Baltimore, Md.
Acid Phos. (Stono)	Stono Phos. Co	Charleston, S. C.
Acid Phos. (Taylor's)	Edisto Phos Co. (for D. S. Taylor)	Charleston, S. C.
Acid Phos. (Wando)	Wando Phos. Co	Charleston, S. C.
Acid Phos. (Wagener's)	Edisto Phos. Co	Charleston, S. C.
Acid Phos. (Ammoniated)	Edisto Phos. Co.	Charleston, S. C.
Acid	The Rasin Fertilizer Co	Baltimore, Md.
Acidulated Rock (Edisto)	Edisto Phos. Co	Charleston, S. C.
Ammoniated Diss. Bone	Ashley Phos. Co	Charleston, S. C.
Ammoniated Diss. Bone	Jno. Merryman & Co	Baltimore, Md.
Ammoniated Diss. Bone	Jno. Merryman & Co	Baltimore, Md.
Ammoniated Navassa Guano	Navassa Guano Co	Wilmington, N. C.
Ammoniated Diss. Bone	Wando Phos. Co	Charleston, S. C.
Ammoniated Diss. Bone	Wando Phos. Co	Charleston, S. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884–85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ammoniated Superphosphate	Hammond, Hull & Co	Savannah, Ga.
Georgia State Standard		
Ammoniated Diss. Bone (Oglethorpe)	Hammond, Hull & Co	Savannah, Ga.
Ammoniated Fertilizer	Edisto Phos. Co	Charleston, S. C.
Ammoniated Superphosphate (Reliance)	Walton, Whann & Co	Wilmington, Del.
Ammoniated Guano	Lorentz & Rittler	Baltimore, Md.
Ammoniated Dissolved Bone (Charmichael & Thomas)	Read & Co	New York.
Ammoniated Superphos. of Lime (Soluble)	G. Ober, Sons & Co	Baltimore, Md.
Ammoniated Diss. Bone (Wagener)	Read & Co	New York.
Ammoniated Fertz. (Bremer's)	Read & Co	New York.
Ammoniated Fertz. (Wagener)	Read & Co	New York.
Ammoniated Diss. Bone	Jno. Merryman & Co	Baltimore, Md.
Ammoniated Bone Superphosphate	E. Frank Coe	Baltimore, Md.
Ammoniated (Furman's Formula)	Furman Farm Improvement Co	Atlanta, Ga.
Ammoniated Diss. Bone	Read & Co	New York.
Ammoniated Bone Superphos	Russell Coe	Linden, N. J.
Ammoniated Phos. (High Grade)(Gibbs & Co.)	E. J. Powers	Wilmington, N. C.
Ammoniated Diss. Bone (Planters' Friend)	Read & Co	New York.
Ammoniated Diss. Bone (Universal)	Williams, Clark & Co	Atlanta, Ga.
Ammoniated Diss. Bone (Victor)	Williams, Clark & Co	Atlanta, Ga.
Ammoniated Bone Superphos. (Americus)	Williams, Clark & Co	Atlanta, Ga.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ammoniated Phos. (Pine Island)	Quinnipiac Fertz. Co	New London, Ct.
Ammoniated Diss. Bone	Baldwin & Co	Savannah, Ga.
Ammoniated Diss. Animal Bones	Baugh & Sons	Baltimore, Md.
Ammoniated Diss. Bone	Bradley Fertz. Co	Boston, Mass.
Ammoniated Guano	Lorentz & Rittler	Baltimore, Md.
Ammoniated Bone Super Phos	The Zell Guano Co.	Baltimore, Md.
Ammoniated Bone Super Phos. (Caswell's Eagle)	Read & Co	New York.
Ammoniated Bone Super Phos. (Caswell's)	Read & Co	New York.
Ammoniated Diss. Bone (Burroughs & Collins)	Read & Co	New York.
Ammoniated Diss. Bone (Davis High Grade)	Read & Co	New York.
Ammoniated Diss. Bone (Carroll's)	Williams, Clark & Co	Atlanta, Ga.
Ammoniated Sol. Phos. (Patapsco)	Patapsco Guano Co	Baltimore, Md.
Ammoniated Bone Super Phos. (Zell's)	Kerchner & Calder Bros	Wilmington, N. C.
Ammoniated Super Phos. (High Grade)	J. I. Middleton & Co	Baltimore, Md.
Ammoniated Diss. Bone (Farmer's)	Hammond, Hull & Co	Savannah, Ga.
Ammoniated Bone Super Phos. (H. Preston & Sons)	Preston Fertz. Co	Greenpoint, L. I.
Ammoniated Fertz. (Amazon)	Edisto Phos. Co. (for J. Pink Reed)	Charleston, S. C.
Ammoniated Diss. Bone	Edisto Phos. Co. (for R. E. Sloan)	Charleston, S. C.
Ammoniated Phos. (Fish)	N. R. Middleton, Jr	Charleston, S. C.
Ammoniated Bone Super Phos. (Georgia)	Kerchner & Calder Bros	Wilmington, N. C.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884–85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Ammoniated Phos. (Stackhouse & Holliday's High Grade)	Read & Co	New York.
Ammonia (Sulphate of)	Baugh & Sons	Baltimore, Md.
Ammoniated Diss. Bone (Farmer's)	Port Royal Fertz. Co	Port Royal, S. C.
Ammoniated Phos. (McCall's High Grade)	Read & Co	New York.
Ash Element	Ashley Phos. Co	Charleston, S. C.
Ash Element	Stono Phos. Co	Charleston, S. C.
Ash Element	Wando Phos. Co	Charleston, S. C.
Ash Element	Etiwan Phos. Co	Charleston, S. C.
Ash Element	Atlantic Phos. Co	Charleston, S. C.
Agricultural Salt	Baugh & Sons	Baltimore, Md.
A. A. Nitrogen	Baugh & Sons	Baltimore, Md.
Animal Bone Fertz	Perry M. DeLeon	Savannah, Ga.
Acme Fertz	Acme M'f'g. Co	Cronly, N. C.
Atlantic Fertz	Atlantic Phos. Co	Charleston, S. C.
Ashepoo Fertz	Ashepoo Phos. Co	Charleston, S. C.
Atlantic Fertz	Atlantic Phos. Co	Charleston, S. C.
Bald Eagle Guano	Ga. Chemical Works	Augusta, Ga.
Baker's Standard	Chemical Co. of Canton	Baltimore, Md.
Buffalo Bone Guano	Furman Farm Impt. Co	Atlanta, Ga.
Bowker's Cotton Fertz	Bowker Fertz. Co	Elizabethport, N. J.
Bahama Sol. Guano	Walton, Whann & Co	Wilmington, Del.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Baltimore Sol. Bone	Patapsco Guano Co	Baltimore, Md.
Bone and Peruvian.	Upshur Guano Co	Norfolk, Va.
B. and S. Standard Guano	Port Royal Fertz. Co	Port Royal, S. C.
Bone Super Phos	Russell Coe	Linden, N. J.
Bone Ash	Ashepoo Phos. Co	Charleston, S. C.
Cotton and Corn Compound	Ashley Phos. Co	Charleston, S. C.
Cotton Fertilizer	Navassa Guano Co	Wilmington, N. C.
Colgate Manure	Chemical Company of Canton	Baltimore, Md.
Cotton States Sol. Phos	John R. Long & Co	Baltimore, Md.
Crescent Bone Fertilizer	Perry M. DeLeon	Savannah, Ga.
Chatham Guano	Perry M. DeLeon	Savannah, Ga.
Cotton and Corn Fertilizer (Robson's)	Clark Cove Guano Co	New Bedford.
Crown Guano	Bowker Fertilizer Co	Elizabethport, N. J.
Chesapeake Guano	Chesapeake Guano Co	Baltimore, Md.
Cotton Food	Maryland Fertz. & Manufacturing Co.	Baltimore, Md.
Circle Brand	Bradley Fertz. Co	Boston, Mass.
Cotton Grower	Lockwood & McClintock	New York.
Calvert Guano	The Zell Guano Co	Baltimore, Md.
Cotton Seed Compound	J. I. Middleton & Co	Baltimore, Md.
Cairo Guano	The Rasin Fertz. Co	Baltimore, Md.
Combahee Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
Cotton Food	Maryland Fertz. and Manufacturing Co.	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884–85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Chicora A. B. S.	John Merryman & Co.	Baltimore, Md.
Cotton Seed Meal	Edisto Phos. Co	Charleston, S. C.
Clarkson's Fertilizer	Edisto Phos. Co	Charleston, S. C.
Cotton Seed Meal	Gibson & Co	Columbia, S. C.
Catawba Fertilizer	Catawba Oil and Fertz. Co	Chester, S. C.
Cotton Seed Meal	M. A. J. Moore	Bennettsville, S. C.
Cotton Seed Meal	Jones, Robertson & Co	Columbia, S. C.
Cotton Fertilizer (Port Royal)	Hammond, Hull & Co	Port Royal, S. C.
Complete Fertilizer	Perry M. DeLeon	Savannah, Ga.
Carolina Fertilizer	Ashepoo Phos. Co	Charleston, S. C.
Dissolved Bone (Harle & Co.)	Edisto Phos. Co	Charleston, S. C.
Dissolved Bone	Stono Phos. Co	Charleston, S. C.
Dissolved Bone	Ashley Phos. Co	Charleston, S. C.
Dissolved Bone Phos. and Potash	Ga. Chemical Works	Augusta, Ga.
Dissolved Bone	Wando Phos. Co	Charleston, S. C.
Dissolved Bone	Etiwan Phos. Co	Charleston, S. C.
Dissolved Bone Phos. (Port Royal)	Hammond, Hull & Co	Port Royal, S. C.
Dissolved Bone Phos. (Oglethorpe)	Hammond, Hull & Co	Port Royal, S. C.
Dissolved Bone (Harle & Co.)	Edisto Phos. Co	Charleston, S. C.
Dissolved Bone	Atlantic Phos. Co	Charleston, S. C.
Dissolved Bone with Ammonia and Potash	Ashepoo Phos Co	Charleston, S. C.
Dissolved Bone Phos. (So. Ca.)	G. Ober & Sons Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZERS.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Dissolved Bone (Cherokee)	Atlantic Phos. Co.	Charleston, S. C.
Dissolved Bone (Irish)	Atlantic Phos. Co.	Charleston, S. C.
Dissolved Bone (Slingluff's)	Boykin, Cramer & Co.	Baltimore, Md.
Dissolved Bone Phos.	Perry M. DeLeon	Savannah, Ga.
Dissolved Raw Bones (Pure)	Baugh & Sons	Baltimore, Md.
Dissolved Bone Phos. (Standard)	Baugh & Sons	Baltimore, Md.
Dissolved Bones (New Process)	Baugh & Sons	Baltimore, Md.
Double Eagle Phos.	Baugh & Sons	Baltimore, Md.
Dissolved Phos	Maryland Fertz. and Mfg. Co.	Baltimore, Md.
Dissolved Bone	Read & Co	New York.
Dissolved Bone (Bull & Scarvill's)	Atlantic Phos. Co.	Charleston, S. C.
Dissolved Bone (Ga. State Standard)	Hammond, Hull & Co.	Savannah, Ga.
Dissolved Bone (Etiwan)	Etiwan Phos. Co.	Charleston, S. C.
Diamond Soluble Bone	Walton, Whann & Co.	Baltimore, Md.
Dissolved Bone with Ammonia and Potash	The Geo. W. Miles Co	Atlanta, Ga.
Empire Guano	The Rasin Fertz Co.	Baltimore, Md.
Eutaw Fertz	Ashepoo Phos. Co	Charleston, S. C.
Excellenza Sol. Phos.	John R. Long & Co.	Baltimore, Md.
Economical Fertz	Baugh & Sons	Baltimore, Md.
Electric Guano	The Zell Guano Co.	Baltimore, Md.
Economizer Phos.	The Zell Guano Co.	Baltimore, Md.
Empire Guano	The Rasin Fertz Co.	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED T SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Etiwan Guano	Etiwan Phos. Co.	Charleston, S. G.
Eddystone Sol. Guano	Clark's Cove Guano Co	New Bedford, Mass.
Floats	Ashley Phos. Co	Charleston, S. C.
Floats (Phos.)	Stono Phos. Co	Charleston, S. C.
Floats	Wando Phos. Co	Charleston, S. C.
Floats	Etiwan Phos. Co	Charleston, S. C.
Farmers' Friend	Read & Co	New York.
Floats	Atlantic Phos. Co	Charleston, S. C.
Farish Furman Formula	Furman Farm Impt. Co	Atlanta, Ga.
Furman High Grade Guano	Furman Farm Impt. Co	Atlanta, Ga.
Fish Bone and Potash	Quinnipiac Fertz. Co	New London, Ct.
Floats	Etiwan Phos. Co	Charleston, S. C.
Fertilizer	Wando Phos. Co	Charleston, S. C.
Fertilizer (Stackhouse & Holliday)	Read & Co	New York.
Georgia Chemical Works Grain Fertz.	Georgia Chemical Works	Augusta, Ga.
Giant Guano	The Rasin Fertz. Co	Baltimore, Md.
Ground Phos	Atlantic Phos. Co.	Charleston, S. C.
Golden Grain Guano	Furman Farm Impt. Co	Atlanta, Ga.
Gowanus Bone Fertz	Dowie & Moise	Charleston, S. C.
Georgia State Grange.	Baldwin & Co	Port Royal, S. C.
Georgia Test	Jno. Merryman & Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Giant	The Rasin Fertz Co	Baltimore, Md.
Giant Guano	The Rasin Fertz. Co	Baltimore, Md.
Greenville Fertz	Greenville Oil Mill	Greenville, S. C.
Guano (Lobos)	Hurtado & Co (Importers)	New York.
Guano (No. 1 Peruvian)	Hobson Hurtado & Co. (Importers)	New York.
Georgia Test (Fairchild's)	J. D. Fairchilds	New York.
Gossypum Phos. The Cotton and Corn Fertz	Gun, Scott & Co	Atlanta, Ga.
Hope Guano	The Rasin Fertz. Co	Baltimore, Md.
Home Fertz. (Chemicals)	Boykin, Cramer & Co	Baltimore, Md.
Home Fertz. (Chemicals) with Sul. Potash	Boykin, Cramer & Co	Baltimore, Md.
Hope	The Rasin Fertz. Co	Baltimore, Md.
Hope Guano	The Rasin Fertz. Co	Baltimore, Md.
Home Standard	Traveller's Rest Fertz. Co	Greenville, S. C.
Inman's Monarch	Williams, Clark & Co	New York.
Inman's San Domingo	Williams, Clark & Co	New York.
Inman's Imperial	Williams, Clark & Co	New York.
Kainit	Ashley Phos. Co	Charleston, S. C.
Kainit	Stono Phos. Co	Charleston, S. C.
Kainit	Georgia Chemical Works	Augusta, Ga.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Kainit	Wando Phos. Co	Charleston, S. C.
Kainit	Atlantic Phos. Co.	Charleston, S. C.
Kainit	Dowie & Moise	Charleston, S. C.
Kainit	Ashepoo Phos. Co	Charleston, S. C.
Kainit	Kerchner & Calder Bros	Wilmington, N. C.
Kainit	E. J. Powers	Wilmington, N. C.
Kainit	Baldwin & Co.	Port Royal, S. C.
Kainit	The Rasin Fertz. Co	Baltimore, Md.
Kainit	G. Herbert Smith	Wilmington, N. C.
Kainit	J. I. Middleton & Co	Baltimore, Md.
Kainit	Royster & Strudwick	Norfolk, Va.
Kainit	W. M. Connor & Bro	
Kainit	Kerchner & Calder Bros	Wilmington, N. C.
Kainit	Gibson & Co.	Columbia, S. C.
Kainit	Read & Co	New York.
Kainit	Hammond, Hull & Co.	Port Royal, S. C.
Kainit	Edisto Phos. Co	Charleston, S. C.
Kainit	Dowie & Moise	Charleston, S. C.
Kainit	Baugh & Sons	Baltimore, Md.
Kainit	Kerchner & Calder Bros	Wilmington, N. C.
King Guano	The Rasin Fertz. Co	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Lowe's Georgia Formula	Georgia Chemical Works	Augusta, Ga.
Long's Prepared Chemicals	John R. Long & Co	Baltimore, Md.
Lee's Prepared Agricultural Lime	A. S. Lee	Richmond, Va.
Lion Guano	The Rasin Fertz. Co	Baltimore, Md.
Mastodon Guano	Georgia Chemical Works	Augusta, Ga.
Manipulated Guano	The Wilcox & Gibbs Guano Co	Charleston, S. C.
Marion Fertilizer	Quinnipiac Fertilizer Co	New London, Conn.
Muriate Potash	Baugh & Sons	Baltimore, Md.
Matchless Cotton Grower	Read & Co	New York.
McCall's Perfection	Baugh & Sons	Baltimore, Md.
McCall's High Grade	Baugh & Sons	Baltimore, Md.
McCall's Standard	Baugh & Sons	Baltimore, Md.
Marion Fertilizer	Read & Co	New York.
Matchless Cotton Grower	Read & Co	New York
Navassa Guano	Bowker Fertilizer Co	Elizabethport, N. J.
No. 1 Fine Ground Bone Dust	Baugh & Sons	Baltimore, Md.
New Process, 10 per cent. Guano	Baugh & Sons	Baltimore, Md.
Nitrate of Soda	Baugh & Sons	Baltimore, Md.
N. Y. Soluble Bone	Read & Co	New York.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884–85.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Owl Brand Guano	Davie & Whittle	Petersburg, Va.
Oil of Vitriol	Baugh & Sons	Baltimore, Md.
Old Reliable	Port Royal Fertilizer Co.	Port Royal, S. C.
Potash Compound	Etiwan Phos. Co	Charleston, S. C.
Plow Brand Raw Bone Super Phos	Walton, Whann & Co	Baltimore.
Planters' Favorite	Jno. R. Long & Co	Baltimore, Md.
Pomona Guano	Perry M. DeLeon	Savannah, Ga.
Pelican Bone Fertz	Dowie & Moise	Charleston, S. C.
Pure Raw Bone Meal	Baugh & Sons	Baltimore, Md.
Pure Nova Scotia Land Plaster	Baugh & Sons	Baltimore, Md.
Piedmont Special Fertz	Piedmont Guano Mfg. Co	Baltimore, Md.
Premium Guano	Geo. L. Arps	Norfolk, Va.
Planters' Fertz	Read & Co	New York.
Patapsco	Patapsco Guano Co	Baltimore, Md.
Richland's Pride	Gibson & Co	Columbia, S. C.
Raw Bone Super Phos	Jas. W. Harle & Co	New York..
Raw Bone Super. Phos	Baugh & Sons	Baltimore, Md.
Small Grain Specific	Ashley Phos. Co.	Charleston, S. C.
Soluble Sea Island Guano	The Rasin Fertz Co	Baltimore, Md.
Sea Gull	Edward Snowden	Baltimore, Md.

FERTILIZERS, ACID PHOSPHATES, COMMERCIAL MANURES AND CHEMICALS ADMITTED TO SALE IN SOUTH CAROLINA, SEASON 1884-85.

BRAND OF FERTILIZER.	NAME OF MANUFACTURER.	LOCATION OF FACTORY.
Santee Fertz	Edisto Phos. Co	Charleston, S. C.
Super Phos	The Wilcox & Gibbs Guano Co.	Charleston, S. C.
Star Brand Guano	Allison & Addison	Richmond, Va.
Soluble Pacific Guano	Pacific Guano Co	Charleston, S. C.
Special Fertz. for Tobacco and Grain	Baugh & Sons	Baltimore, Md.
Special Substitute for 6 per cent. Peruvian Guano	Baugh & Sons	Baltimore, Md.
Sul. of Magnesia (Keiserite)	Baugh & Sons	Baltimore, Md.
Sul. of Soda (Salt Cake)	Baugh & Sons	Baltimore, Md.
Sea Fowl B. D. Guano	Bradley Fertz Co	Boston, Mass.
Sterling Guano	Manhattan Cheml. Co	New York.
Soluble Sea Island Guano	The Rasin Fertz Co	Baltimore, Md.
South American Guano	The Rasin Fertz Co	Baltimore, Md.
Soluble Guano	Stono Phos Co.	Charleston, S. C.
Soluble Guano	Ashley Phos. Co	Charleston, S. C.
Soluble Raw Bone Fertz	Perry M. DeLeon	Savannah, Ga.
Truck Farmers' Special Guano	The Wilcox & Gibbs Guano Co.	Charleston, S. C.
Yemassee Fertz	Ashepoo Fertz. Co	Charleston, S. C.

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
		ABBEVILLE	COUNTY.		
1884. Nov. 15.	McGhee, J. W	Hodges Depot	Hodges Depot	By Express	20
	Calhoun, J. W	Ninety-Six	Ninety-Six	By Express	20
	Harden, Robt. H	Abbeville.	Abbeville	By Express	20
	Baker, Ames	Abbeville	Abbeville	By Express	20
	Franklin, Mrs. Annie M	Cokesbury	Hodges Depot	By Express	20
	Simpson, J. L	Abbeville	Abbeville.	By Express	20
	Hadden, R. W	Due West	Donalds	By Express	20
	McGhee, J. S	Donaldsville	Donalds	By Express	20
	McGhee, W. P.	Donaldsville	Donalds	By Express	20
	Sharp, C. E	Donaldsville	Donalds	By Express	20
	Jones, T. B	Donaldsville	Donalds	By Express	20
	Plowden, E. J	Greenwood	Greenwood	By Express	20
	Blake, Edward	Greenwood	Greenwood.	By Express	20
	Bell, A. J	Greenwood	Greenwood.	By Express	20
	Blake, R. P	Greenwood	Greenwood.	By Express	20
	Sharp, E. M.	Donaldsville	Donalds	By Express	20
	Lipford, B. L	Donaldsville	Donalds	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884.					
Nov. 15.	Riley, G. B	Hodges	Hodges	By Express	20
	Brownlee, Jno. E.	Autreville	Abbeville	By Express	20
	Kay, C. D	Autreville	Abbeville	By Express	20
	Zeigler, M. G	Abbeville	Abbeville	By Express	20
	Walker, J. H	Abbeville	Abbeville	By Express	20
	Pratt, R. M	Level Land	Abbeville	By Express	20
	Bell, P. N	Due West	Abbeville	By Express	20
	Armstrong, R. H	Due West	Abbeville	By Express	20
	Pratt, W. L	Level Land	Abbeville	By Express	20
	Cochran, Jno. D	Hodges	Hodges	By Express	20
	Magill, Daniel H	Hodges	Hodges	By Express	20
	Ellis, J. C	Hodges	Hodges	By Express	20
	Crowther, P. A	Autreville	Abbeville	By Express	20
				Total	600
		AIKEN	COUNTY.		
	Holder, Jno. A	Poverty Hill	Augusta, Ga	By Express	20
	Smith, Dr. J. A	Vaucluse	Vaucluse	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884. Nov. 15.	Scott, H. W	White Pond	White Pond	By Express	20
	Willis, Daniel	Ridge Spring	Ridge Spring	By Express	20
	Brewer, J. P	Graniteville	Graniteville	By Express	20
	Franklin, Burgess	Johnston	Johnston	By Express	20
	Sally, D. H	Williston	Williston	By Express	20
	Satterthwait, S. C	Aiken	Aiken	By Express	20
	Wessel, J. W	Aiken	Aiken	By Express	20
				Total	180
		ANDERSON	COUNTY.		
Nov. 17	Boatner, W. F	Williamston	Williamston	By Express	20
	Attaway, Rev. John	Williamston	Williamston	By Express	20
	McCowan, W. T	Mountain Creek	Anderson	By Express	20
	Skelton, D. S	Mountain Creek	Anderson	By Express	20
	Hall, Wm. S	Anderson	Anderson	By Express	20
	Tribble, J. D	Anderson	Anderson	By Express	20
	Shanklin, E. H	Pendleton	Pendleton	By Express	20
	Smith, W. C	Williamston	Williamston	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884. Nov. 17.	Brown, Newton S	Anderson	Anderson	By Express	20
	Harris, L. W	Williamston	Williamston	By Express	20
	Burgess, J. L	Williamston	Williamston	By Express	20
	Harris, Andrew	Williamston	Williamston	By Express	20
	Richardson, J. G	Piedmont	Piedmont	By Express	20
	Watson, W. N	Piedmont	Piedmont	By Express	20
	Dacus, N. C	Williamston	Williamston	By Express	20
	Martin, Thomas J	Williamston	Pelzer	By Express	20
	Hogg, R. H	Williamston	Williamston	By Express	20
	Dacus, A. M	Williamston	Williamston	By Express	20
	Hogg, J. B	Williamston	Williamston	By Express	20
	Rogers, J. C	Williamston	Williamston	By Express	20
	Wharton, Samuel	Moffettsville	Anderson	By Express	20
	McGee, Col. Jesse	Anderson	Anderson	By Express	20
	Smith, J. P	Equality	Anderson	By Express	20
	Tucker, Geo. W	Anderson	Anderson	By Express	20
	Gray, H. H	Anderson	Anderson	By Express	20
	Ashley, Jas. W	Anderson	Anderson	By Express	20
	Dacus, John L	Williamston	Anderson	By Express	20

RECORD OF DISTRIBUTION OF CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884.					
Nov. 17.	Simpson, T. R.	Demer	Bird's Crossing	By Express	20
	Knight, John	Belton	Belton	By Express	20
	Masters, R. B.	Anderson	Anderson	By Express	20
	Greer, John W.	Belton	Belton	By Express	20
	McPhail, Jas. W.	Stoneville	Anderson	By Express	20
	Duncan, B. F.	Anderson	Anderson	By Express	20
	Williams, H.	Honea Path	Honea Path	By Express	20
	Ashley, Jas. R.	Stoney Point	Anderson	By Express	20
	Stanton, C. B.	Belton	Belton	By Express	20
	Gambrell, J. C.	Belton	Belton	By Express	20
	Cox, J. A.	Belton	Belton	By Express	20
	Pool, J. N.	Belton	Belton	By Express	20
				Total	780
		BARNWELL	COUNTY.		
	Briggs, H. W.	Blackville	Blackville	By Express	20
	Hefferman, John J.	Blackville	Blackville	By Express	20
	Kennedy, W. L.	Bamberg	Bamberg	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884.					
Nov. 17.	Ray, S. G.	Bamberg	Bamberg	By Express	20
	Edenfield, C. M.	Allendale	Allendale	By Express	20
	Williams, S. S	Elmore	Graham's	By Express	20
	Nimmons, W. H.	Elmore	Graham's	By Express	20
	Kennedy, Jas. A.	Elmore	Graham's	By Express	20
	Kennedy, H. M.	Elmore	Graham's	By Express	20
	Morrall, Dr. G. W.	Millett	Millett	By Express	20
	Jennings, A. S.	Graham's	Graham's	By Express	20
				Total	220
		CHARLESTON	COUNTY.		
Nov. 15.	Heins, F.	Charleston	Charleston	By Express	20
		CHESTER	COUNTY.		
	Hardin, A. W.	Chester	Chester	By Express	20
	Gibson, Abram	Rossville	Chester	By Express	20
	Sibley, S. W.	Rocky Mount	Richburg	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884. Nov. 15.	Ross, W. W	Cornwell	Blackstock	By Express	20
1885. Feb.	Knox, John	Richburg	Richburg	By Express	20
	Hincklin	Richburg	Richburg	By Express	20
				Total	120
		CHESTERFIELD	COUNTY.		
1884. Nov. 17.	Spencer, W. W	Cheraw	Cheraw	By Express	20
	Brewer, Geo. W	Hornsborough	Cheraw	By Express	20
	Gay, Bruner L.	Hornsborough	Cheraw	By Express	20
				Total	60
		CLARENDON	COUNTY.		
	Durham, S. E	Summerton	Manning	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
		COLLETON	COUNTY.		
1884. Nov. 17.	Mims, Dr. J. P.	St. George's	George's Station	By Express	20
1885. Feb.	Clement, J. C.	Rantowle's	Rantowle's	By Express	20
				Total	40
		DARLINGTON	COUNTY.		
1884. Nov. 17.	Stuckey, J. W	Bishopville	Timmonsville	By Express	20
	Stuckey, T. S	Bishopville	Timmonsville	By Express	20
	Marco, M	Lydia	Darlington	By Express	20
	Woodburn, Jr., J. Ed	Stokes Bridge	Timmonsville	By Express	20
	Peel, Robert	Cartersville	Timmonsville	By Express	20
	Woodham, J. W	Stokes Bridge	Timmonsville	By Express	20
	Kelly, R. S	Stokes Bridge	Timmonsville	By Express	20
	Rhodes, W. C	Darlington	Darlington	By Express	20
	Parrott, A. W	Darlington	Darlington	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884.					
Nov. 17.	Howle, G. B	Darlington.	Darlington	By Express	20
	Miller, Ferdinand	Darlington	Darlington	By Express	20
				Total	220
		EDGEFIELD	COUNTY.		
Nov. 18.	Green, Edward	Clintonward	Ridge	By Express	20
	Banks, S. G	Clintonward	Ridge	By Express	20
	Hicks, Thos	Clintonward	Ridge	By Express	20
	McDaniel, Wm.	Cold Spring	Benton	By Express	20
	Bussy, D. C	Cold Spring	Benton	By Express	20
	Timmerman, M. B	Johnston	Johnston	By Express	20
	Thomas, Samuel	Johnston	Johnston	By Express	20
	Lee, Andrew	Leesville	Leesville	By Express	20
	Thomas, W. B	Johnston	Johnston	By Express	20
	Williams, A. G	Johnston	Johnston	By Express	20
	Williams, I. H. A	Johnston	Johnston	By Express	20
	Riser, Yancey V. A	Etheridge	Leesville	By Express	20
	Dreman, F. V	Longmire	Troy	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884. Nov. 18.	Nicholson, N. C	Havirdsville	Batesburg	By Express	20
	Cheatham, Samuel	Edgefield	Trenton	By Express	20
	Miller, Walter	Trenton	Trenton	By Express	20
	Miller, James	Trenton	Trenton	By Express	20
	Miller, J. W	Trenton	Trenton	By Express	20
	Little, John	Johnston	Johnston	By Express	20
	Crouch, Wm	Butler	Johnston	By Express	20
	Carson, J. A	Butler	Johnston	By Express	20
	Merrick, D. E	Johnston	Johnston	By Express	20
	Kinard, J. O	Etheridge	Leesville	By Express	20
1885. February	Crouch, Mark	Trenton	Trenton	By Express	20
				Total	420
		FAIRFIELD	COUNTY.		
1884. Nov. 18.	Simonton, S. R	White Oak	White Oak	By Express	20
	Walker, D. V	Winnsboro	Winnsboro	By Express	20
	Schwartze, J. J	Spring Hill	Alston	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884. Nov. 18.	Kelley, P. R.	Peak's	Alston	By Express	20
	Dum, A.	Blythewood	Blythewood	By Express	20
	Brice, R. George	Woodward	Woodward	By Express	20
	Brown, J. Wm	Blythewood	Blythewood	By Express	20
				Total	140
		GREENVILLE	COUNTY.		
Nov. 18	Riddle, J. M.	Reedy River	Greenville	By Express	20
	Miller, Henry	Traveller's Rest	Greenville	By Express	20
	Green, S. M.	Greenville	Greenville	By Express	20
	Miller, D. D.	Fork Shoals	Pelzer	By Express	20
	Taylor, John T.	Greer's	Greer's	By Express	20
	Clark, E. B.	Lenderman	Greenville	By Express	20
	Thacker, Jas. M. H.	Piedmont	Piedmont	By Express	20
	Farmer, J. C.	Highland Grove	Greer's	By Express	20
	Foster, R. J.	Highland Grove	Greer's	By Express	20
	Janes, S. L.	Reid	Greenville	By Express	20
	Neves, T. P.	Tygerville	Greenville	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884.					
Nov. 18.	Willis, G. K	Woodruff	Piedmont	By Express	20
	Hawkins, John H	Greenville	Greenville	By Express	20
	Crain, Lemuel	Tigersville	Greenville	By Express	20
	Suddeth, P. C	Tigersville	Greenville	By Express	20
	Hicks, Reabin W	Woodruff	Piedmont	By Express	20
	Anderson, W. L	Middle Saluda	Greenville	By Express	20
	Batson, Jas	Reid's	Greenville	By Express	20
	Batson, Irwin	Reid's	Greenville	By Express	20
	Hicks, W. P	Greenville	Greenville	By Express	20
	Franks, L. M	Greenville	Greenville	By Express	20
	Green, Robert	Reid's	Greenville	By Exprcss	20
	Pierce, M. A	Greenville	Greenville	By Express	20
	Freeman, T. T	Chick's Spring	Greenville	By Express	20
	Batson, J. Frank	Reid's	Greenville	By Express	20
	Batson, E. P	Greenville	Greenville	By Express	20
	Brookhier, H. E	Greenville	Greenville	By Express	20
				Total	540

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
		HAMPTON	COUNTY.		
1884.					
Nov. 18.	Dailey, H. L	Seminole	Hampton	By Express	20
	Rushing, A. R	Seminole	Hampton	By Express	20
	McTeer, James A	Early Branch	Early Branch	By Express	20
				Total	60
		HORRY	COUNTY.		
	Saivis, S. F	Port Harrelson	Fair Bluff, N. C	By Express	20
	Owens, C. P	Port Harrelson	Fair Bluff, N. C	By Express	20
				Total	40
		KERSHAW	COUNTY.		
	Workman, C. E	Camden	Camden	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884.					
		LANCASTER	COUNTY.		
Nov. 18.	McIlwain Bros.	Lancaster	Lancaster	By Express	20
	Bruce, James	Pleasant Hill	Lancaster	By Express	20
1885.					
Feb.	Moore, W. C.	Lancaster	Lancaster	By Express	20
	Connor, O. F.	Lancaster	Lancaster	By Express	20
	Billings, K. G.	Lancaster	Lancaster	By Express	20
				Total	100
		*LAURENS	COUNTY.		
1885.					
Nov. 24	Milam, F. S.	Clinton	Clinton	By Express	20
	Copeland, John C.	Clinton	Clinton	By Express	20
	Rammage, I. H.	Reynosa	Clinton	By Express	20
	Johling, J. A	Reynosa	Clinton	By Express	20
	Garrett, A. Y.	Centerville	Laurens	By Express	20
	Simpson, S. E	Reynosa	Clinton	By Express	20

*Shipments to Laurens County were duplicated January 22, making forty fish sent to each applicant.

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1884.					
Nov. 24.	Phinney, R. O	Clinton	Clinton	By Express	20
	Taylor, H. F	Goldville	Goldville	By Express	20
	Pearson, J. P	Clinton	Clinton	By Express	20
	Mitchell, Wm	Novice	Laurens	By Express	80
	Hunter, Richard	Laurens	Laurens	By Express	20
	Netlams, LaFayette	Eden	Laurens	By Express	20
	Gray, John F	Eden	Laurens	By Express	20
	Gray, Z. N	Goodgion's Ferry	Laurens	By Express	20
	Hellams, R. H.	Goodgion's Ferry	Laurens	By Express	20
	Knight, Wm. S	Brewerton	Donaldsville	By Express	20
	Austin, W. T	Cross Hill	Ninety-Six	By Express	20
	Carter, Geo. L	Cross Hill	Ninety-Six	By Express	20
	Yarborough, Lewis	Cross Anchor	Clinton	By Express	20
	Wilbanks, John S	Cross Anchor	Clinton	By Express	20
				Total	800

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
		LEXINGTON	COUNTY.		
1885.					
Jan. 22.	Whittle, Emanuel	Batesburg	Batesburg	By Express	20
	Padget, Emanuel.	Batesburg	Batesburg	By Express	20
	Wingard, S. P	Lexington	Lexington	By Express	20
	Padget, A. A	Batesburg.	Batesburg	By Express	20
	Hite, W. H	Lexington	Lexington	By Express	20
	Mathias, Jas. E	Lexington	Lexington	By Express	20
	Shull, J. W	Columbia	Columbia	Del. at Department	20
	Younce, Wesley	Columbia	Columbia	Del. at Department	20
	Mettz, John F	Lexington	Lexington	By Express	20
	Seay, John W	Lexington	Lexington	By Express	20
	Spires, Wade H	Rishton	Gilbert Hollow	By Express	20
	Green, W. Briggs	Lexington	Lexington	By Express	20
Jan. 30.	Potterfield, Henry	Sandy Flat	Columbia	Del. at Department	20
Jan. 22.	Eargle, Dr. J. W	Spring Hill	Alston	By Express	20
	Kaminer, S. O	Lexington	Lexington	By Express	20
	Seay, J. B	Lexington	Lexington	By Express	20
	Bradford, C. S	Lexington	Lexington	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1885.					
Jan. 22.	Hendrix, Scott....................	Lexington................	Lexington	By Express	20
	Little, John H........................	Lexington................	Lexington	By Express...............	20
	Leaphart, C. E	Lexington................	Lexington	By Express...............	20
February	Rawles, Benjamin................	Lexington................	Lexington................	By Express......	20
				Total..............	420
		MARION	COUNTY.		
Jan. 22.	Moody, E. J..........................	Marion	Marion	By Express...............	20
	Shuttleworth, G. C............ ...	Cedalia	Marion	By Express...............	20
	Woodward, N. C....................	Effingham................	Effingham	By Express...............	20
	Watson, Saml........................	Marion......	Marion	By Express	20
	McRae, H.............................	Campbell's Bridge.......	Marion	By Express...............	20
				Total..............	100

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.					
		MARLBORO	COUNTY		
Jan. 22.	Harrington, E. J	Cheraw	Cheraw	By Express	20
	Calhoune, J. A	Clio	Laurenburg, N. C	By Express	20
				Total	40
		NEWBERRY	COUNTY.		
Jan. 22.	Goree, W. O	Kinard	Newberry	By Express	20
	Setzler, P. A	Pomaria	Pomaria	By Express	20
	Setzler, Tom	Pomaria	Pomaria	By Express	20
	Johnston, W. R	Kinard	Jalapa	By Express	20
	Livingston, A. J	Kinard	Jalapa	By Express	20
	McKitrick, G. W.	Kinard	Jalapa	By Express	20
	Davis, J. T	Kinard	Jalapa	By Express	20
	Livingston, J. M	Newberry	Newberry	By Express	20
	Bezzhardt, H. E	Newberry	Newberry	By Express	20
	Slealy, N. C	Prosperity	Prosperity	By Express	20
	Pool, John T	Cross Anchor	Clinton	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.						
Jan.	22	Tellers, Levi Q	Prosperity	Prosperity	By Express	20
		Ruff, Dr. J. M. H	Glymphville	Strother's	By Express	20
		McGraw, B. F.	Newberry	Newberry	By Express	20
					Total	280
			OCONEE	COUNTY.		
Jan.	22	Lee, Rhuben	Walhalla	Walhalla	By Express	20
		Wicking, Wm	Walhalla	Walhalla	By Express	20
		Sanders, C. G	Westminster	Westminster	By Express	20
		Puckett, John H	Westminster	Westminster	By Express	20
		Ray, G. W	Westminster	Westminster	By Express	20
		Johns, J. A	Westminster	Westminster	By Express	20
		Cole, J. C	Westminster	Westminster	By Express	20
		Puckett, J. C	Seneca City	Seneca City	By Express	20
		Gillison, Elijah	Seneca City	Seneca City	By Express	20
		Davis, Julius J	Seneca City	Seneca City	By Express	20
		Bibb, Wm	Westminster	Westminster	By Express	20
		Hughes, Wm. E	Richland	Seneca City	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1885.					
Jan. 22	Anick, John	Richland	Seneca City	By Express	20
	Stribling, Marshall S.	Richland	Seneca City	By Express	20
	Turner, Wm.	Richland	Seneca City	By Express	20
	Moreland, Goodon	Richland	Seneca City	By Express	20
	Reeder, J. L.	Tugaloo	Westminster	By Express	20
	Brady, F. B	Fort Madison	Westminster	By Express	20
	Myers, Henry	Seneca City	Seneca City	By Express	20
	Elrod, G. W	Seneca City	Seneca City	By Express	20
	Elrod, F. W	Seneca City	Seneca City	By Express	20
	Wilson, J. J	Fall Creek	Walhalla	By Express	20
	Mize, C. M	Oak Way	Westminster	By Express	20
	Sanders, Elijah	Fall Creek	Walhalla	By Express	20
	Haynes, Laurence	Seneca City	Seneca City	By Express	20
	Tulley, James L.	Salem	Walhalla	By Express	20
	Todd, M. C.	Walhalla	Walhalla	By Express	20
	Kilpatrick, Benson	Seneca City	Seneca City	By Express	20
	Fewdley, J. W	Fall Creek	Walhalla	By Express	20
	Fewdley, D. W	Fall Creek	Walhalla	By Express	20
	Williams, James H.	Seneca City	Seneca City	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885. Jan. 22.	Williams, W. T.	Seneca City	Seneca City	By Express	20
	Myers, James B.	Tokeener	Seneca City	By Express	20
				Total	660
		ORANGEBURG	COUNTY.		
	Livingston, George H.	Sawyerdale	Blackville	By Express	20
	Inabinett, L. P.	Sawyerdale	Blackville	By Express	20
	Harley, J. H.	Sawyerdale	Blackville	By Express	20
	Dukes, W. H., Jr.	Orangeburg	Orangeburg	By Express	20
	Felder, E. J.	Orangeburg	Orangeburg	By Express	20
	Jennings, A. S.	Graham's	Graham's	By Express	20
	Culler, E. L.	Orangeburg	Orangeburg	By Express	20
	Shuler, John W.	Orangeburg	Orangeburg	By Express	20
	Bookhart, J. L.	Elloree	Orangeburg	By Express	20
	Johnson, W. M.	Jones's Bridge	Orangeburg	By Express	20
				Total	200

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1885.		PICKENS	COUNTY.		
Jan. 23.	Smith, Gaines	Easley	Easley	By Express	20
	Smith, H. G	Easley	Easley	By Express	20
	Berry, W. T	Easley	Easley	By Express	20
	Bentley, James E	Easley	Easley	By Express	20
	Bentley, Frank A	Easley	Easley	By Express	20
	Gaines, Jos. H	Central	Central	By Express	20
	Lewis, R. L	Central	Central	By Express	20
	Boggs, R. L	Central	Central	By Express	20
	Bowen, R. A	Pickens	Easley	By Express	20
	Lawrence, J. L.	Central	Central	By Express	20
	Porter, J. R	Central	Central	By Express	20
	Payne, W. N	Central	Central	By Express	20
	Watkins, T. L	Central	Central	By Express	20
	Clement, J. H	Briggs	Easley	By Express	20
	Williams, M. F	Briggs	Easley	By Express	20
	Phillips, E. H	Briggs	Easley	By Express	20
	Williams, G. E. R	Briggs	Easley	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.					
Jan. 23.	Williams, J. D.	Briggs	Easley	By Express	20
	Lathem, E. B.	Briggs	Easley	By Express	20
	Griffin, E. S.	Rice's	Easley	By Express	20
	Jones, John M.	Easley	Easley	By Express	20
	Purkins, Thos.	Liberty	Liberty	By Express	20
	Clayton, Dr. S. W.	Liberty	Liberty	By Express	20
	Hollingswarth, W. R.	Liberty	Liberty	By Express	20
Jan. 30.	Elias, Day	Easley	Easley	By Express	20
				Total	500
		RICHLAND	COUNTY.		
Jan. 27.	Dolan, Jas	Columbia	Columbia	Delivered at Dp't.	25
Jan. 24.	Lee, Jesse	Columbia	Columbia	Delivered at Dp't.	25
Jan. 30.	Entzminger, Thos. W.	Columbia	Columbia	Delivered at Dp't.	30
Jan. 27.	Heidt, Wm.	Columbia	Columbia	Delivered at Dp't.	20
Feb. 21.	Prince, E.	Columbia	Columbia	Delivered at Dp't.	20
				Total	120

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.		Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.						
			SPARTANBURG	COUNTY.		
Jan.	23	Epton, H. H	Damascus	Spartanburg	By Express	20
		Hilton, J	Clifton	Spartanburg	By Express	20
		Chapman, H. M	Clifton	Cowpens	By Express	20
		Wofford, J. L	Damascus	Spartanburg	By Express	20
		Wofford, Luther	Reidville	Spartanburg	By Express	20
		Bishop, W. P	Valley Falls	Spartanburg	By Express	20
		Crim, W. T	Reidville	Spartanburg	By Express	20
		Dodd, B. F	Valley Falls	Spartanburg	By Express	20
		Crim, M. A	Reidville	Spartanburg	By Express	20
		Miller, M. T. H	Wellford	Wellford	By Express	20
		Jordan, James	Wellford	Wellford	By Express	20
		Hill, W. S	Wellford	Wellford	By Express	20
		Clement, J. C	Valley Falls	Spartanburg	By Express	20
		Clement, O. P	Valley Falls	Spartanburg	By Express	20
		Miller, Samuel C	Millville	Spartanburg	By Express	20
		Philson, Robert W	Millville	Spartanburg	By Express	20
		Hunter, J. L	Cashville	Greenville	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.					
Jan. 23.	Anderson, J. C.	Reidville	Duncan's	By Express	20
	Wall, H. L.	Spartanburg	Spartanburg	By Express	20
	Dodd, H.	Spartanburg	Spartanburg	By Express	20
	Foster, J. W.	Damascus	Spartanburg	By Express	20
	Drummond, H. E.	Drummondville	Spartanburg	By Express	20
Jan. 23.	Hadden, Jas. H.	Wellford	Wellford	By Express	20
	Clement, G. C.	Wellford	Wellford	By Express	20
	Pearson, H. J.	Woodruff	Spartanburg	By Express	20
	Chamblin, A. D.	Woodruff	Spartanburg	By Express	20
	Thomson, R. C.	Gaffney City	Gaffney City	By Express	20
	Willis, C. O.	Spartanburg	Spartanburg	By Express	20
	Brannon, Rufus	Shoaly	Spartanburg	By Express	20
	Ballenger, T. T.	Landrum	Landrum	By Express	20
	Harris, E. J.	Spartanburg	Spartanburg	By Express	20
	Ford, L. R.	Eureka	Spartanburg	By Express	20
	Pearson, T. P.	Wellford	Wellford	By Express	20
				Total	660

RECORD OF DISTRIBUTION OF CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Continued.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1885.					
		SUMTER	COUNTY.		
Jan. 23.	Blanding, Pressly	Sumter	Sumter	By Express	20
	Bradford, G. W	Sumter	Sumter	By Express	20
	Marte, E. W	Sumter	Sumter	By Express	20
	Dunne, E. J.	Mechanicsville	Sumter	By Express	20
	Shaw, H. G	Mannville	Mayesville	By Express	20
	Cooper, J. Harrington	Mayesville	Mayesville	By Express	20
				Total	120
		UNION	COUNTY.		
Jan. 23	Williams, P. P	Jonesville	Jonesville	By Express	
	Hames, W. F	Jonesville	Jonesville	By Express	
	Thomas, P. S	Santuc	Santuc	By Express	20
	Lemaster, R. H	Jonesville	Jonesville	By Express	20
	Mosely, S. J.	Jonesville	Jonesville	By Express	20
	Lindsay, J. E	Jonesville	Jonesville	By Express	20
	Rice, B. H	Union	Union	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

FOR SEASON OF 1884, BY SOUTH CAROLINA FISH COMMISSION, UNDER DIRECTION OF C. J. HUSKE, SUPERINTENDENT OF FISH AND FISHERIES.—*Continued.*

Date of Shipment.	NAME OF APPLICANT.	POSTOFFICE ADDRESS.	NEAREST EXPRESS OFFICE.	HOW SHIPPED.	No. of Fish.
1885.					
Jan. 23	Fant, Dr. A. E.	Meadow	Santuc	By Express	20
	Spears, A. D.	Union	Union	By Express	20
	Davis, R. T.	Meadow	Union	By Express	20
				Total	200
		YORK	COUNTY.		
	Smith, W. B.	Clover	Clover	By Express	20
	Campbell, A. P.	Clover	Clover	By Express	20
	Pegram, Wm.	Clover	Clover	By Express	20
	Smith, John J.	Clover	Clover	By Express	20
	Knox, John	Clover	Clover	By Express	20
	Adams, James M.	Bowling	Clover	By Express	20
	Adams, J. E.	Bowling	Clover	By Express	20
	Stewart, John	Fort Mill	Fort Mill	By Express	20
	Fewell, John W.	Rock Hill	Rock Hill	By Express	20
	Forhas, D. J.	Clover	Clover	By Express	20
	Hamilton, T. R.	Rock Hill	Rock Hill	By Express	20
	Hogue, Jesse A.	Yorkville	Yorkville	By Express	20

RECORD OF DISTRIBUTION OF GERMAN CARP

For Season of 1884, by South Carolina Fish Commission, Under Direction of C. J. Huske, Superintendent of Fish and Fisheries.—*Concluded.*

Date of Shipment.	Name of Applicant.	Postoffice Address.	Nearest Express Office.	How Shipped.	No. of Fish.
1884. Jan. 23	Fewell, S. A.	Rock Hill	Rock Hill	By Express	20
	Fewell, A. F.	Rock Hill	Rock Hill	By Express	20
	Hoke, J.	Rock Hill	Rock Hill	By Express	20
	Hoke, J. C.	Rock Hill	Rock Hill	By Express	20
	Bigger, J. B.	Rock Hill	Rock Hill	By Express	20
	Bigger, W. S.	Rock Hill	Rock Hill	By Express	20
	Bigger, J. L.	Rock Hill	Rock Hill	By Express	20
	Boyce, W. W.	Pineville	Pineville	By Express	20
	Wherry, W. C.	Rock Hill	Rock Hill	By Express	20
	Hoke, J. C.	Rock Hill	Rock Hill	By Express	20
				Total	440

Receipts and Disbursements of P. E. Chazal, State Chemist, November 1, 1884, to October 31, 1885.

RECEIPTS.		DISBURSEMENTS.	
Warrant No. 1	$ 16 00	Gas, December, 1883, to March 1st, 1885	$ 168 25
Warrant No. 9	66 60	Sundries	24 40
Warrant No. 10	16 00	Porter, 12 months	192 00
Warrant No. 37	32 00	Wm. Robertson 1 month $100.00; Expenses $41.95	141 95
Warrant No. 45	32 90	Chemicals and apparatus	469 09
Warrant No. 57	400 00	Freight and Express	28 98
Warrant No. 69	37 50	Traveling expenses	128 75
Warrant No. 89	168 25	Postage and telegrams	11 05
Warrant No. 101	40 00	Stationery	18 70
Warrant No. 122	150 00		
Warrant No. 137	50 00		
Warrant No. 159	25 00		
Warrant No. 176	75 00		
Warrant No. 197	55 00		
Warrant No. 212	18 92		
Total	$1,183 17	Total Disbursements	$1,183 17

Financial Report of Superintendent Fish and Fisheries.

COLUMBIA, S. C., October 31, 1885.

Hon, A. P. BUTLER, *Commissioner of Agriculture.*

SIR: I herewith submit Report of receipts and disbursements by me on account of Fish Commission for 1884 and 1885.

	RECEIPTS.		DISBURSEMENTS.	
Feb. 1884.	Received of A. P. Butler, Commissioner	$ 50 00	Transportation	$ 31 35
1885.	Received of A. P. Butler, Commissioner	573 08	Improvements	93 97
1885.	Received sale of shipping buckets	89 85	Assistance	138 50
1885.	Received sale of horse	130 00	Subsistence	240 76
			Telegrams and postage	40
			Sundries	329 83
			Cash on hand	8 12
		$842 93		$842 93

Very respectfully,
C. J. HUSKE, Superintendent Fish and Fisheries.

FINANCIAL REPORT OF CLERK.

Columbia, S. C., October 31, 1885.

Hon. A. P. Butler, *Commissioner of Agriculture, Columbia, S. C.*

Sir: I have the honor to submit herewith a report of receipts and disbursements on account of sundry expenses of the Department of Agriculture for the year ending October 31, 1885:

RECEIPTS.

Received from A. P. Butler, Commissioner of Agriculture	$388 62
Received from sale of lumber	50
	$389 12

DISBURSEMENTS.

Paid Porter		$153 50
" Express charges		37 60
" Freight and hauling		32 76
" Postage		114 35
" Expenses Sampler drawing guano samples		15 95
" Ice.		7 50
" Stationery		2 75
" Office fixtures and sundries		13 39
" Telegrams		2 92
" Specimens		8 40
	$389 12	$389 12

Very respectfully,

L. A. RANSOM, Clerk.